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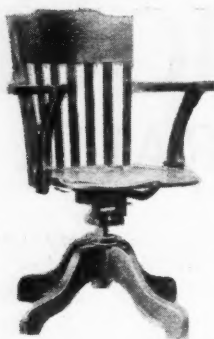
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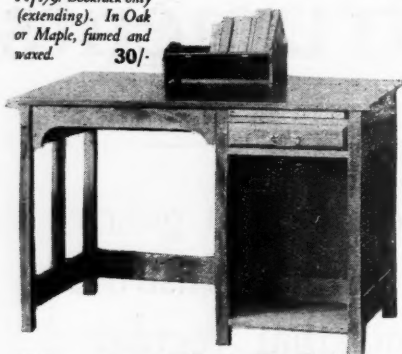


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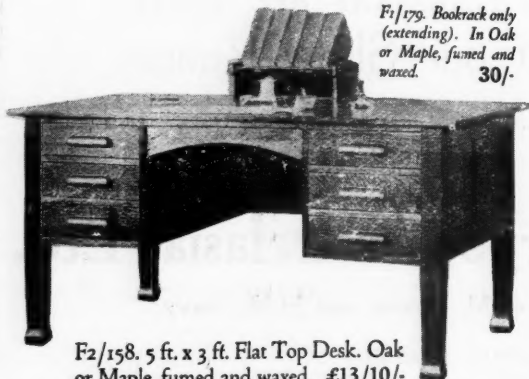
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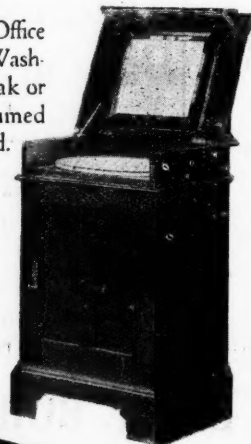
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X-RAY TREATMENT OF THE SKIN AND ITS APPENDAGES.¹

By F. J. STANSFIELD, M.R.C.S. (England), L.R.C.P. (London), Hobart.

BEFORE saying anything about the effect of X-rays on pathological conditions of the skin and its appendages, perhaps I ought to refer briefly to the history of radio-therapy, say something about the chemical, bio-chemical and biological effects of X-rays and finally deal with the effects of the rays on diseased conditions.

The History of Röntgen Therapy.

The history of Röntgen therapy may be divided into three eras, the optimistic, the pessimistic and the realistic.

Professor Röntgen communicated his discovery to the world through the medium of the Physico-Medical Society of Würzburg in December, 1895. The communication was immediately published in every civilized country and caused very considerable interest and not a little excitement amongst physicists, electrical engineers and some physicians who at once began to experiment and investigate. The power of electric generators was increased, in-

duction coils were greatly improved as were also static machines. It was at this juncture that Mr. Herbert Jackson made what was probably the greatest stride in the way of a practical addition to the necessary apparatus. Making use of Crooke's discovery that the cathode rays could be focussed and intercepted, he focussed the rays on a platinum disc placed within the tube and thus created the first focus tube. In an incredible short time X-ray operators were making routine examinations for fractures, dislocations and foreign bodies.

During the course of this practical and experimental work it was noticed that after a prolonged exposure to the rays an erythema of the skin was produced and in some instances a dermatitis and even deep ulceration occurred. This was recognized as a reaction to X-rays. This biological effect attracted particularly the interest of Schiff and Freund and it was only a month or two after Röntgen's announcement that they suggested the use of X-rays in the treatment of disease.

This was the birth of Röntgen-therapy. The first therapeutic attempts were made in nævus, hypertrichosis, cancer and tuberculosis. Within a few months the medical press was literally swamped with accounts of the more or less successful treatment of various maladies with X-rays. The fact that the new rays seemed to exert a beneficial effect

¹Read at a meeting of the Tasmanian Branch of the British Medical Association on June 26, 1923.

on malignant tissue led to the immediate belief that there was at last a cure for this disease. Thus began the era of optimism. Many physicians installed apparatus and attempted to use X-rays for practical therapeutic purposes without making a study of the subject. Even the scientific and conscientious workers did not at first realize that they were dealing with an exceedingly dangerous agent. It was natural, therefore, that many patients as well as operators received serious injuries. These facts together with the discovery made by Brown and Osgood that sterility was produced by X-rays caused operators to be more careful. The unverified accounts of marvellous cures, the injurious effects observed as time went on, resulting in some cases in the loss of limbs and even life, together with the absence of any satisfactory method of estimating the amount of radiation administered and the fact that the earlier claims were not substantiated finally resulted in the period of depression or pessimism which lasted from about 1906 to 1910 or 1912. It was just a case of the pendulum swinging from one extreme to the other as is so often the case when some new discovery is boomed before it has been properly tried and proved.

Fortunately there were a few scientifically-minded men who recognized both the advantages and the limitations of X-rays and recognized the necessity of standardizing the work and devising accurate methods of measuring the radiations. Among these Röntgen therapists may be mentioned Pusey, Piffard, Stelwagon, Schiff, Freund, Hall Edwards, Holzkecht, Kienbock, Benoist, Ondin, Morris and Sequeira and others. All these men rendered great service in bringing about more accurate technique and putting Röntgen therapy on a sounder and more scientific basis.

The advent of the improved Rhumkorff coil gave a great impetus to X-ray work and this form of generator was in general use until the birth of the interrupterless transformer. Snook, of Philadelphia, was the first to place on the market a machine of the interrupterless transformer type. This was quickly followed by a similar machine made by Gaiffe, of Paris.

For some time the high tension transformer did not meet with much support and I well remember the severe criticism to which I was subjected because I ventured to instal one of the first Snook type of machines in England. The coil had taken a great hold on the sympathies of most of the workers, but gradually the advantages of the interrupterless transformer over the coil, its greater power and simplicity overcame the prejudices of time and to-day the transformer practically holds the field. Of course, it has gone through many stages of improvement and to-day it has reached such a pitch of efficiency that it is difficult to imagine how it can be further improved.

And now we come to the period which I have designated the "realistic period." That era we are living in today. It was entered when scientists and the medical profession began to realize that X-rays were a factor of great usefulness, with great pos-

sibilities, but with limitations. It was realized that too much had been expected, but it was also felt that sufficient time had not been allowed for the proper study and development of the science.

As a result of this more sane attitude confidence in the professional mind was restored and, if only the work can be kept out of the hands of men whom Piffard describes as "radio-maniacs" and "radio-grafters," there is no reason why that confidence should not continue to grow. It should be remembered that only thirty years ago X-rays had not even been dreamed of and, as it is so young a science, there is naturally a lot still to be learnt.

So much for the history of Röntgen therapy.

The Chemical, Bio-Chemical and Biological Effects of X-Rays.

With regard to the chemical, bio-chemical and biological effect of X-rays, I do not intend to say very much. It is interesting to note, however, that both X-rays and radium rays are capable of effecting changes in elementary substances and in simple and complex organic and inorganic compounds. The chemical change is one of oxidation, but the actual physical change is atomic as well as molecular and is apparently brought about by the process of ionization.

In this respect it may be mentioned that radium rays are more potent than X-rays owing to the presence of α and β rays which are chemically very active. Silver bromide is reduced to metallic silver, platino-cyanide of barium is changed from the crystalline to the amorphous state with consequent change in colour due to dehydration. This is an effect noted by all X-ray workers, but not always understood. The fluorescent screens used for fluoroscopy are made of this salt. Iodoform in chloroform undergoes a change in colour and free iodine is liberated.

Considerable experimental work has been done by biologists and physiological chemists in an attempt to determine the action of radium and X-rays on the higher fatty acids, organic colloids and enzymes and some investigators have shown that both radium rays and X-rays possess the property of modifying the production and the action of some enzymes and ferments. Inasmuch as all cells contain many kinds of enzymes which are necessary to their growth, reproduction and function, it is obvious that our knowledge of the effect of radiation on these substances is of the greatest importance. At the present time the findings of various workers in this particular direction are not in accord, but there seems to be a general consensus of opinion that small doses accelerate, whilst large doses inhibit the production and action of these substances. Slight changes have been noted in globulin and nuclealbumin, but these are thought to be due rather to physical than chemical action.

With regard to micro-organisms it has been found that small doses of X-radiation stimulate their activities, whilst larger doses inhibit them and make them lethargic. The lethal dose is very large.

Experiments have also been carried out on bacteria in culture and it has been determined that it

is the soft β rays which are the most deadly. It has been decided that large doses of β rays will kill bacteria in culture to a depth of about two millimetres of gelatine.

These facts are of practical importance because the soft β rays are the ones which are injurious to the skin and are largely responsible for X-ray dermatitis. As they have to be given in large doses in order to kill bacterial life, it would seem that their usefulness in treating disease is considerably discounted. Still it must be remembered that β rays are produced in the tissues during the passage of γ and X-rays. It may be, therefore, that the direct bactericidal action of radiation is of therapeutic importance.

It has been found as a result of extensive experimental work on the ova of birds, fishes and mammals as well as on the larvæ of some of the lower forms of life, that X-rays and radium rays exert a definite influence on all developing forms of animal life. Broadly speaking a cell undergoing or about to undergo division is very easily modified, small doses stimulate, whilst large doses inhibit their rate of division. During the rest stage a much larger dose is required to produce any definite effect.

I should now like to call your attention very briefly to the effect of Röntgen rays and radium rays on various animal organs and tissues before passing on to the more immediate subject of my paper, namely the effect of radiations on the skin.

It is more or less widely known now in the profession that the application of X-radiation to the testicles will produce sterility, temporary or permanent, partial or complete, without modification of sexual potency. This, of course, is of the greatest importance in treating any condition in the region of the scrotum and care has to be taken to protect the testes. It has been found that the seminiferous tubules are exceedingly sensitive to irradiation and the early chemical and morphological changes have excited considerable interest amongst embryologists and physiological chemists. From a consideration of these facts it might be supposed that it was inadvisable or even impossible to treat such conditions as pruritus, psoriasis, *lichen planus* or eczema of the scrotum, but this is not so. It is quite possible to treat these conditions with perfect success, but care is necessary. With regard to the ovary, it has been found that X-rays or radium rays in sufficient doses will cause the complete disappearance of the Graafian follicles with more or less atrophy of the entire organ. It was this knowledge that led to the intensive cross-fire treatment of menorrhagia and uterine fibroid.

It is in fact possible to produce an artificial menopause without apparent injury to the skin or other abdominal organs. It is important to note that the amount of irradiation necessary in treating various skin lesions is never sufficient to produce sterility or to injure the ovaries.

In the case of female attendants, however, it is very necessary to protect the pelvic region because the repeated doses, although small, may eventually produce sterility. One must not forget that the effects of X-rays are cumulative.

X-rays and radium rays have a definite effect on the blood. It was in 1903 that Senn noticed that it was possible to reduce the leucocytic count in patients suffering from leucæmia and it was not long before this disease was being successfully treated.

It was noted that the enlarged leucæmic spleen and glands were reduced in size and that the usual blood picture was considerably modified. At a later date patients with Hodgkins's disease were treated and it was found that the glandular hyperplasia could be controlled. It was also found that the cutaneous lesions of *mycosis fungoides* and *leucæmia cutis* very quickly disappeared under the influence of X-radiation. In short it was discovered that X-rays were able to affect lymphoid tissue. When this discovery was made, it caused considerable consternation among Röntgenologists and many promptly had their blood tested. The results of these tests fortunately were such as to prove that the alarm was not necessary.

Still the possible danger had been pointed out and X-ray workers were urged to greater caution. A few instances were recorded of lowered red cell and leucocyte counts and Schwarz states that he found evidence of injury to the blood in ten Röntgenologists who had been exposed to X-rays over long periods. He cites two fatal instances of leucæmia in X-ray workers and one in a chemist who was engaged in the production of radium. One instance has come under my own notice in which a fatal leucæmia was produced and in this instance the operator had not been long engaged in the work. The rapid onset of the condition in this patient was attributed to his use of the more powerful Coolidge tube without sufficient protection. Here I might utter a word of warning which in my opinion has not been sufficiently voiced, namely that the danger of X-rays are not, as so many people think, abolished. They still exist today just as they did in the early days. The difference is that, owing to the enormous increase in the power both of the generating apparatus and the Coolidge tube, the danger is very much increased and added protection is necessary. This is a point which seems to have been overlooked to some extent by some manufacturers of X-ray plant.

In studying the effect of X-rays on blood the same rule obtains as in other tissues. Small doses stimulate and large doses inhibit. Thus it is possible to effect an increase or diminution of the leucocytes in the blood. When the irradiated area includes lymphoid tissue the numerical drop or increase is more pronounced and of longer duration. Of all the white cells the lymphocytes are most affected. All lymphoid tissue is extremely sensitive to X-radiation and is next in this respect to the testes and ovaries.

The investigations which elicited the above facts, also led to further very interesting research in regard to lymphocytic control. Several investigators connected with the Rockefeller Institute used X-rays in connexion with experimental tuberculosis. The experiments were carried out on guinea-pigs. The peritoneal cavity was inoculated with tuber-

culosis and the animal was then exposed to one intensive dose of X-rays. By this means the number of leucocytes was considerably reduced and the reduction lasted for ten days. It was found that at the end of five to seven weeks, the usual time for a growth to show itself after peritoneal inoculation, there was very gross lesion present. In this way a method of diagnosis was established. Also it was established that the lymphocyte was directly or indirectly the natural defence of the organism against tuberculosis.

These same workers also carried out some further research work in connexion with cancer. Spontaneous cancer is common in white mice and cancerous tissue will continue to grow when transplanted into another animal of the same species. By administering stimulating doses of X-rays to the animal prior to the transplantation it was found that the cancerous tissue failed to grow. This, of course, was due to the increased leucocytosis produced by X-rays. If the tissue was returned to the original host it continued to grow and this proves that its failure to grow in the second host was due to an immunity which had been set up by the rays. It was found that this immunity was not of long duration. If, on the other hand, the animal was subjected to an inhibiting dose of X-rays and a temporary lymphotic reduction brought about, the graft would take and grow rapidly.

These experiments have led some Röntgenologists to attempt the control of cancer by radiating lymphoid tissue rather than the tumour itself. So far the results have not been satisfactory, but it is perhaps early yet to express any positive opinion on the point as very little has been done in regard to cancer in the human subject. It certainly seems worth while giving a stimulating dose of X-rays in conjunction with any surgical procedure which may be thought necessary both prior to and subsequent to operation. For some little time I have been in the habit of giving these radiations prior to excision of the breast and of following them as soon as possible after operation with further radiations.

It is interesting to note that in the human skin there is always a lymphocytic infiltration at the very beginning of cancer evolution, obviously an attempt on the part of Nature to combat the disease.

In passing, I should like to refer to the results of radiation of the thyroid gland. Microscopically very little alteration has been noted. In practice, however, it is possible to overcome all symptoms of hyper-thyroidism by means of intensive doses of X-rays. This is the experience of such men as Pfahler, Zulick, Dowd and others. Personally I have been treating such conditions over a period of ten years and can speak with some authority as to the satisfactory results obtained.

As regards such ductless glands as the suprarenals and pituitary body practically nothing is known of the effect of irradiation.

With regard to the nervous system it is only necessary to state that the mature nervous system is particularly resistant to radiation. In the embryonic state, however, development may be seriously interfered with, especially the brain and spinal cord.

Of all the abdominal organs the spleen is the most sensitive to radiation; the intestine comes next. The action of X-rays on the spleen we have already noted. With regard to the intestine it has been found experimentally that intensive doses produce definite congestion, degeneration of the epithelium and atrophy of the secreting glands. It is only in these experiments, however, that these changes are found. In practice even when the large doses necessary for the treatment of uterine fibromata and internal cancer are used, no evidence of injury to the alimentary tract has been noted.

Skin Affections and X-Rays.

With these preliminary words, I will proceed to discuss some of the more usual types of skin affection which may be treated successfully by means of X-radiation.

Whilst we are considering the effects of X-rays on pathological conditions it will be well for us to bear in mind the following important facts, reference to which has already been made: (1) Minute amounts of radiation stimulate, while large amounts inhibit and destroy. (2) Cells which are undifferentiated, immature or are biologically or physiologically active, are particularly susceptible to X-rays. (3) Bacteria are not affected directly by γ rays or X-rays, but they may be killed by large doses of β rays.

In treating such conditions as eczema, psoriasis and particularly *mycosis fungoides*, where there is always an associated infiltration and proliferation of the cellular elements, it would naturally be expected that small doses of X-rays would through their stimulating effect enhance the pathological condition.

As a matter of fact, however, it is found in actual practice that these conditions are considerably benefited by small doses. The probable explanation of this is that the proliferating cells which are present, are in a much more susceptible state owing to their biological activity and consequently the dose which would act as a stimulant to the normal cells, act as an inhibitor. Furthermore the conditions and indeed all skin conditions which react favourably to small doses of X-ray, are associated with considerable congestion or hyperæmia and this means an increased local iron content. Now according to Bragg, Keetman and others when iron is acted on by γ or X-rays, secondary radiations (β rays) are produced and it is probable that the therapeutic effect is produced by these β rays.

My experience of X-radiation in these conditions has been most gratifying. The irritation associated with eczema is speedily relieved and after three or four doses it is usually possible to discharge the patient, apparently cured.

Psoriasis is also greatly benefited, in a temporary manner.

Mycosis fungoides, a condition which before the advent of X-rays was regarded as incurable and usually ended fatally, is now one of the most amenable to treatment.

Lupus erythematosus and *lupus vulgaris* are two conditions which respond satisfactorily to X-ray

treatment, providing the correct technique is used. It has been said that X-radiation favours the evolution of epithelioma in lupoid tissue and this is possible where an excessive dose has been given, but there is no evidence to show that epithelioma is a more frequent sequel of lupus since the advent of X-rays than it was before, providing the treatment is given intelligently.

Acne vulgaris is another condition that can be satisfactorily treated. In some patients X-ray treatment has been blamed for a subsequent hypertrichosis, supposed to be due to the stimulating effect of the rays on the hair follicles. If this is a fact, it is rather strange that X-ray treatment of other diseases when the same technique is used is not followed by hypertrichosis. Furthermore superfluous hair is seen following *acne vulgaris* in patients on whom no X-rays have been used.

As you know *acne vulgaris* is essentially a disease of puberty. With the advent of puberty certain glands undergo great and rapid development. These changes in persons whose sebaceous glands are already inclined to over-activity, are likely to be followed by plugging of the ducts, consequent interference of the capillary circulation around the gland and tendency to inflammation. These conditions are increased by reflex circulatory disturbances due to the strain thrown upon the nervous system by the changes taking place at puberty. Inflammatory changes are also always present in the peri-follicular tissue. Thus the pathological condition of *acne vulgaris* seems to call for and usually gets a stimulating form of treatment, similar to that which is adopted for *alopecia areata*. It is not surprising, therefore, that hypertrichosis may follow even the usual methods of treatment.

With regard to the X-ray treatment of alopecia some authorities such as Bordet, Holzkecht and Kienbock affirm that they have noted beneficial effects. Others do not seem to be able to confirm them. Personally, I have treated quite a number of these conditions with fractional doses and the ultimate results have been satisfactory, but to what extent these results have been due to X-rays, I am not prepared to say, as usually other means have been used in conjunction with them.

With regard to the action of X-radiation on bacterial affections of the skin it is interesting to note that it has been found experimentally that γ rays and X-rays exert no influence on the growth of bacteria in culture. A lethal effect on many bacteria is exerted by β rays to a depth of about two millimetres.

This is very interesting in face of the fact that such bacterial affections as *syccosis vulgaris*, *acne vulgaris* and *acne varioliformis* respond very quickly to Röntgenization. The reason for this is not clear. Theoretically the secondary β rays evolved in the tissues may act directly on bacteria, but this theory is not supported by experimental work in the laboratory. Another possible explanation of the results which are undoubtedly obtained in such bacterial affections, is that in some way the rays so modify the tissues

that the organisms find a less suitable medium in which to grow. Whether this increased resistance is brought about by stimulation of enzymes or some other bio-chemical process is not known.

Some years ago Crane studied the opsonic index in several patients suffering from *acne vulgaris*, *lupus vulgaris* and *scrofuloderma* during X-ray treatment and, although his work has not been confirmed, it has not been refuted. This field of research is still open. He found that the opsonic index was in all instances low before the treatment was commenced. The immediate result was a lowering still further of the index, but this negative phase was quickly followed by a positive phase which lasted for several days. The treatments were given once a week and it was found that the positive phase each week was a little higher than that of the preceding week. Immunity was established in a few weeks and the eruptions disappeared. Crane's explanation was that the rays caused the production of an autogenous vaccine. This may or may not be so, but up to the present, I am not aware of any experimental work which can be said to refute it.

Another bacterial skin affection which responds speedily to X-radiation is *syccosis vulgaris*.

Tinea tonsurans, as you all probably know, also clears up satisfactorily, but in patients with this condition it is thought by many that the effect is obtained by simply depilating the diseased hairs. This undoubtedly is an important factor in the cure, but at the same time Crane's theory may have some bearing as well. The treatment of these patients is difficult, but most satisfactory where the correct technique is used. I do not, however, know of a bigger pit-fall for the amateur Röntgenologist.

In all patients with *tinea tonsurans* it is absolutely essential that the whole scalp should be irradiated at the same sitting and the dose must be very accurately measured, otherwise there are certain to be unpleasant sequelæ such as permanent alopecia and possibly a first, second or third degree X-ray burn.

Vascular nævi are amongst the congenital skin conditions which may be successfully treated with X-rays and radium. Contrary, perhaps, to what would be expected the superficial port wine stain is the most resistant of them all. Even the cavernous nævus will disappear after safe dosage. I have a patient with such a condition under treatment at the present time. The patient, an infant, was seen by Dr. Stoddard Barr and has also been seen by Dr. Rogers. They will be able to speak as to the result of the treatment. The condition involved the whole nose which was very much enlarged and resembled a ripe plum both in colour and size. The age of the child necessitated the treatment being given under chloroform anæsthesia. As a result of the treatments which have been given at intervals of three weeks to a month the nose has assumed almost its normal colour and size. There are still a few superficial dilated vessels which I may eventually treat with the electrolytic needle. I am hopeful in this case that we will get a perfect result.

Various forms of the pathological hypertrophies can also be treated successfully by X-ray applications.

Chief among these are corns, callosities and the common wart (*verruca vulgaris*). How the results are obtained is not positively known, but it is suggested that as the increased activity is presumably in the lower part of the *rete* and in the basal cell layer, irradiation prevents further cell multiplication and the horny layer exfoliates. If measures are undertaken at the same time to remove any local cause, there should be no recurrence. The manner in which the various verrucae respond to irradiation is rather peculiar. *Verruca vulgaris* is particularly responsive to irradiation, whilst *verruca plana*, *verruca filiformis*, *verruca acuminata* (venereal warts), seborrhœic verruca and the senile verrucae are less amenable to treatment.

Pruritus whether associated with an eruption or not responds to irradiation in a most satisfactory manner. I recently had a patient with extensive pruritus involving the abdomen, buttocks and anus. This patient was seen by Dr. Rogers and he will be able to bear me out when I say that the result was entirely satisfactory. In this patient there was an eruption of an eczematous nature associated with the pruritus. In these conditions, I usually find that one application gives considerable relief and after three or four irradiations the patient can be discharged.

With regard to new growths, I will only speak as far as they concern the skin. Deep seated cancer, as you all know, is now being treated with more or less success. Deep X-ray therapy, however, is still in the experimental stage and in any case does not come within the scope of this paper.

With regard to skin cancer there is an enormous difference in the manner in which the various types react to X-radiation. The basal-cell epithelioma is very susceptible. Squamous-cell epithelioma is much less susceptible. The various forms of fibroma, *fibroma molluscum*, diffuse fibroma, hard fibroma and neuro-fibroma hardly respond at all. Keloid strange to say responds quite readily in most instances.

Moles or as they have been called, benign endotheliomata are cured only with great difficulty by means of X-radiation.

When we consider the sarcomata, we find the same differences in susceptibility to the rays as we did with the carcinomata. Giant-cell sarcoma is more readily amenable than either round-cell or spindle-cell sarcoma.

The difference in susceptibility seems to be due to biological conditions. Broadly speaking it may be said that the more the cells of the new growth resemble the normal tissue cells in activity, the more resistant they are to X-rays and conversely the more they resemble embryonic cells in their rapid multiplication and immaturity, the more susceptible they are. Thus we find that soft fibromata in which there is rapid proliferation of young connective tissue cells, will yield to irradiation whilst hard fibromata which consist of mature, differentiated fibrous tissue, are particularly resistant. In this connexion I may mention that uterine fibromata and myomata are not directly affected, but indirectly through atrophy of the ovaries.

I mention this because the results which are obtained in these conditions, would seem to disprove the biological theory of susceptibility of various cells to X-rays.

The relative therapeutic values of radium and X-rays is a matter of some interest. Radium has its supporters and so have X-rays. As a matter of fact the biological and therapeutic action of γ rays and X-rays is to all intents and purposes the same.

They seem to be equally efficacious regardless of the disease, providing the conditions for application are equally suited to both, but there are certain situations where one cannot be applied and the other can. It seems to be only a question of anatomical or shall I say geographical difficulty. For instance conditions in the mouth, nose, vagina and external auditory meatus are more easily got at by radium than by X-rays, but on the other hand, surface conditions, especially where they are extensive, are more suitably treated by X-rays.

I think it might be useful if I give you a summary of those skin conditions which may be successfully treated by X-radiation and point out those conditions in which relief is not to be expected.

It is generally agreed by dermatologists as well as Röntgenologists that X-rays constitute a specific for *acne vulgaris*. There are several varieties or clinical types of *acne vulgaris* and these require special consideration by the Röntgenologist as they do not all react in the same manner to X-radiation. *Comedo* constitutes a clinical type of *acne vulgaris* in which the lesions consist of blackheads with perhaps a few papules and pustules. This type is amenable to X-ray treatment.

Acne papulosa also responds well to the treatment.

Acne pustulosa does not respond so readily as some of the other types. In this type the dose must be smaller than in some of the more chronic types. In this condition we have probably a staphylococcal infection as well as the *acne bacillus* infection.

Acne rosacea or *erythematos*, seen mostly in females and often associated with gastro-intestinal or menstrual disturbances, does not react very favourably to X-rays and should be treated with caution.

Acne indurata constitutes the type which gives the most satisfactory results and the achievements of X-rays in this condition is most striking. The skin in these cases will generally tolerate relatively large doses. The results are prompt and permanent.

From what I have said you will gather that I do not advocate the indiscriminate use of X-rays in all cases of acne. Indeed in some instances it is desirable that X-radiation should be combined with other forms of treatment. For instance, where a definite cause, such as gastro-intestinal disturbance or menstrual disturbance, is known to exist, it should be removed and any exciting element in the diet should be avoided. In all these cases when possible there should be supporting treatment.

The percentage of relapses in these conditions after X-rays have been used is very small, probably

not more than 5%. In these it has been usually found that some exciting cause such as I have mentioned, is still in existence.

In patients with pure *acne rosacea* unassociated with *acne vulgaris* the value of radiation is doubtful.

Sycosis vulgaris is a condition which must be spoken of somewhat guardedly, because the results obtained range from brilliant to poor. Some patients are completely cured after a few fractional doses, whilst others resist even prolonged treatment.

In some instances the desired result may be obtained without even depilating the hairs, whilst in others not only is depilation necessary but even permanent alopecia before the condition can be cured.

Furunculus is a condition in which good results have been obtained. As a rule one dose will prevent the further formation of boils. In treating this condition it is necessary to avoid causing an erythema.

Several writers speak of remarkably satisfactory results in patients with carbuncle. Usually one intensive dose of filtered rays is sufficient. The first few hours after the treatment are generally marked by increased pain, but this quickly subsides and within forty-eight hours all pain will have disappeared, the induration gradually subsides and frequently the contents break down and are discharged.

Tinea tonsurans I have already referred to as one of the conditions which may be most successfully treated, and I have no hesitation in saying that in the hands of a careful operator there should be no failures and no untoward results. It must, however, be remembered that depilation is absolutely necessary and this fact must be explained to the parents. It should also be borne in mind that in cases of long standing there may be a permanent alopecia following as a result of the disease itself, in spite of all precautions and care taken in administering the treatment.

Tinea barbae is also very amenable to X-ray treatment, but the same precautions are necessary as in treating ringworm of the scalp.

There is a skin condition which I understand is unknown in Tasmania and that is *favus*. As those who have seen cases will know, *favus* of the scalp is most recalcitrant to all the usual methods of treatment. According to most dermatologists and Röntgenologists X-ray treatment is practically the only satisfactory method of combating the disease. In this condition particularly, the physician and especially the Röntgenologist will be well advised to warn the patient or friends that permanent baldness, partial or complete with possible contraction of the scalp, is likely to result. It should be made quite clear that these unfortunate sequelæ are the result of the disease and not the treatment, otherwise the doctor will be unjustly blamed.

There seems to be quite a lot of evidence in the literature that actinomyces is curable by X-radiation. Personally I have not seen a case treated by X-rays, but the results of other workers are so encouraging that I should certainly not hesitate to advise it.

Now with regard to eczema. As you know eczema is a big subject which presents numerous clinical types. As certain types respond satisfactorily to X-radiation, whilst others are quite unsuitable, it will be well to study rather closely the whole subject.

It is interesting to note in passing that eczema was one of the first skin affections to be treated with X-rays and the results obtained were so satisfactory that it came into general use for all types in certain parts of the world. It was then found that the treatment was not suitable to all the types of eczema. However, dermatologists and Röntgenologists today are even more enthusiastic about X-ray treatment of eczema than they were in the early days, in spite of the fact that its applicability has been somewhat restricted.

Years ago the term eczema included what are today a number of separate entities and some modern dermatologists prefer to discard altogether the term eczema in favour of dermatitis, with a qualifying adjective when possible. Thus we have occupational eczema, *dermatitis venenata*, *eczema intertrigo*, eczematoid ringworm, parasitic eczema and *eczema marginatum*.

For the purpose of this paper it does not matter much what system of grouping is adopted or whether we prefer to consider all these conditions as one and the same disease in its various stages.

My object is to point out those types which are readily amenable to X-ray treatment and those which are not, and for this purpose I shall adopt the modern classification of eczema.

These various types may be put into nine classes: *Dermatitis venenata*, eczematoid ringworm, *eczema marginatum*, *neuro-dermatitis*, infantile eczema, *dermatitis seborrhæica*, intertrigo, regional eczema, eruptive types of eczema.

Under the first class, *dermatitis venenata*, come those cases which are due to the local action of chemicals and drugs. The eruption may be acute, sub-acute or chronic.

In the majority of these X-rays are not indicated. If the condition is correctly diagnosed and the exciting cause removed, the eruption as a rule will quickly disappear.

The next class includes all those in which any eruption of an eczematous appearance is caused by ringworm fungus.

Included in this group are *eczema intertrigo* of the toes and fingers, eczematous ringworm of the body and eczematous eruptions of the pubic region, axillæ, umbilicus and under pendulous breasts when due to fungi.

With regard to *eczema intertrigo*, three clinical varieties have been described. Acute vesicular or vesico-pustular is clinically identical with acute vesicular eczema or pompholyx and is usually seen in the palms of the hands and on the soles of the feet. Chronic intertrigenous is the second form and the third is hyper-keratotic eczema which is identical with chronic squamous eczema and is seen usually on the soles and palms.

In the opinion of those who have had most experience in treating these conditions, the ordinary dermatological methods should be tried before X-ray treatment is undertaken. The results in both forms of treatment seem to vary very considerably and where one fails the other may succeed, but there seems to be no certainty.

Eczema marginatum may really be included in the class just mentioned, so little more need be said about it, except that when the usual means of treatment have failed, it is well worth while trying X-rays. Instances of cure by means of X-rays have been recorded. The eruption in these cases as you know is often confined to the crural region, but may spread to the thighs, pubic region, umbilicus, axillæ and breasts.

Neuro-dermatitis of Brocq, or *dermatitis lichenoides pruriens* or *lichen simplex chronicus* of Vidal, a condition which attacks the neck, inner sides of the thighs at their upper parts, the flexures of the knees and elbows and the peri-anal region, is a condition which responds excellently to X-radiation. In fact so well that this method of treatment should be the method elected. Especially is this the case in the circumscribed varieties. The disseminated type does not respond quite so readily.

Infantile eczema is benefited by X-ray treatment, but should be used in conjunction with other measures, especially in those instances in which the dermatitis begins around the genitals and buttocks and is due to decomposing urine, faeces, lack of cleanliness *et cetera*. In these cases it is unnecessary to state that ordinary hygienic treatment without which any other form of application is useless must be adopted.

With regard to seborrhœic dermatitis or seborrhœic eczema there are several varieties. Seborrhœic dermatitis of the scalp may present various forms, such as *seborrhœa sicca* *pityriasis steatodes* and oily seborrhœa or it may be manifested by a scaly eruption which is very similar in appearance to ordinary psoriasis. At times the affection is pustular and exudative. On the body the eruption is usually seen on the chest, neck, ears, face, axillæ, around the umbilicus, over the spine and in the flexures. In fact it may be quite universal. With regard to X-radiation in these conditions it seems to be the experience of most workers that seborrhœa of the scalp is not benefited, with the exception of the exudative or psoriasiform varieties. These conditions do well as a rule and respond quickly to the treatment.

In cases of *dermatitis seborrhœica corporis* irradiation is sometimes of great value, the exudative varieties responding the best. In cases of oily seborrhœa of the face the greatest care has to be used and the closest watch kept as sebaceous activity may be seriously lessened and some permanent wrinkling of the skin may result. If proper doses are given, however, and a close watch is kept, there should not be any untoward results.

Intertrigo as is well known is an inflammatory condition of the skin in situations where there is moisture, warmth, friction and where there is diffi-

culty in keeping the parts clean. It is seen usually under pendulous breasts, in the axillæ, between the buttocks and in the inguinal regions. In making a diagnosis it should be ascertained whether the eruption is or is not due to the ringworm organism.

Patients with this condition may usually be successfully treated by the ordinary hygienic methods, but at times instances are met with which will not clear up under these methods. In all such instances X-rays should be tried as the condition generally clears up most satisfactorily and in a remarkably short time. A few fractional doses alone are required.

Regional eczemas, such as eczema of the face, scalp, scrotum, nipple, legs, hands, feet and nails are all benefited by suitable radiation. This is more especially true of the exudative and squamous varieties.

A word of caution must be added in regard to eczema of the scalp, scrotum and nipple. In the first class of case the dose must be so regulated as not to cause a defluvium. In the second it must be remembered that the testicles are exceedingly sensitive to the rays and if care be not taken, the activity of the seminiferous tubules will be more or less permanently affected. With regard to eczema of the nipple it must, of course, be remembered that such a thing as Paget's disease exists.

Now to summarize. As a general proposition, both in localized and generalized acute erythematous eczema, irradiation is contra-indicated in the early stage of evolution. If the eruption persists and becomes pruritic, exudative or squamous, then X-ray treatment is certainly indicated and excellent results may be expected.

Considered as one of the many remedies used in the treatment of eczema, omitting those types already mentioned which have their own specific topical treatment and regarding the subject in a very general way, I have no hesitation in giving it as my opinion that X-ray treatment is the best remedy we have for eczema.

Psoriasis, parapsoriasis and *dermatitis exfoliativa* are conditions which do exceeding well under irradiation. It is doubtful if any therapeutic agent or combination of agents can compare with X-rays (intelligently applied) in efficacy for the treatment of the lesions of psoriasis.

As a rule isolated, small lesions of long standing will disappear after a single semi-intensive or sub-intensive dose of X-rays. Large inveterate lesions and generalized eruptions of almost all clinical types will undergo involution after three to eight fractional doses.

It has been noted that psoriatic lesions are particularly sensitive to X-radiation, much more so than normal skin. Consequently a dose which would be quite safe if applied to normal skin, might produce a first or even second degree X-ray burn if applied to a psoriatic lesion. Fortunately very small doses are sufficient to cause the disappearance of these lesions.

I do not wish to give the impression, however, that I am claiming that X-radiation in psoriasis is cura-

ILLUSTRATIONS TO DR. A. J. CUNNINGHAM'S ARTICLE.



FIGURE I.
Showing fracture with anterior angulation and forward displacement of elbow joint. Comminuted fracture of carpal end of radius. (Case I.)

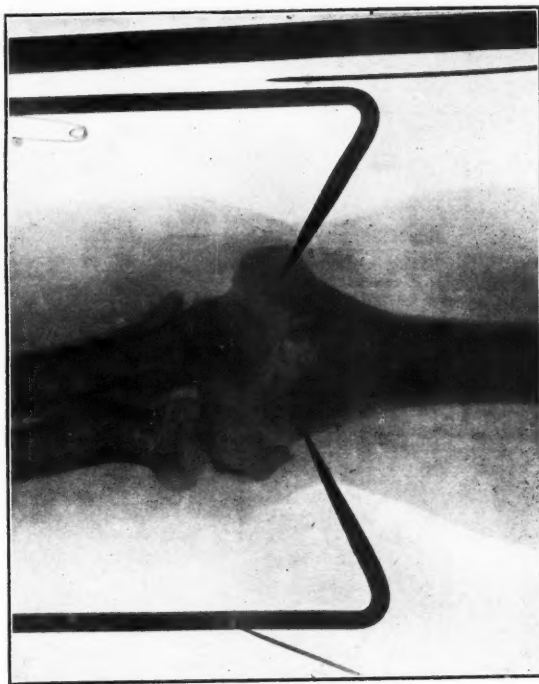


FIGURE III.
Antero-posterior view with hooks in place, showing restoration of alignment. (Case I.)

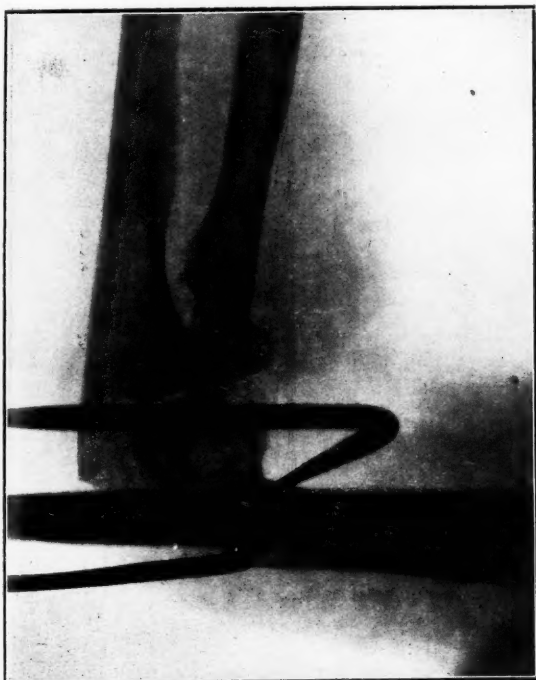


FIGURE II.
Showing angulation of lower fragment, overlapping almost eliminated. (Case I.)



FIGURE IV.
Lateral view, showing final result. (Case I.)

ILLUSTRATIONS TO DR. A. J. CUNNINGHAM'S ARTICLE.



FIGURE V.
Position of fragments before application of tractor hooks.
(Case II.)



FIGURE VII.
Showing position after incision for the correction of
displacement. (Case II.—March 1, 1923.)

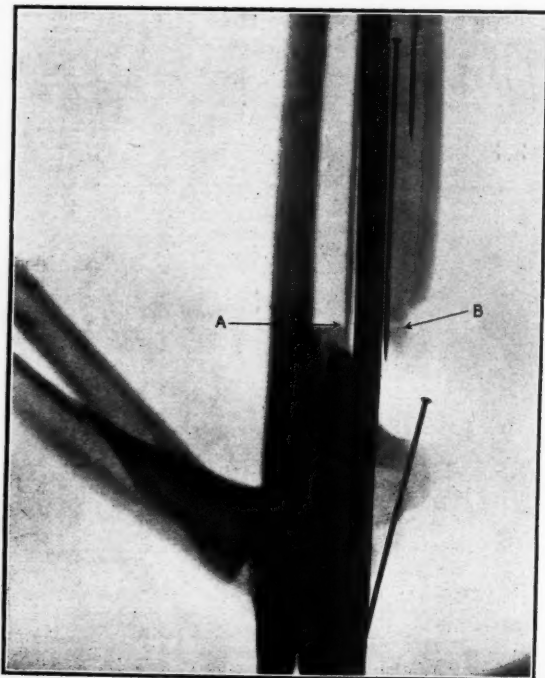


FIGURE VI.
Position after extension by tractor (A = lower fragment, B =
upper fragment) showing reduction of overlapping, but per-
sistence of anterior displacement. (Case II.—February 20, 1923.)



FIGURE VIII.
Showing end result with early callus formation.
(Case II.—March 6, 1923.)

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tive, because it is not. Psoriasis is regarded at the present time as incurable. Still X-rays will cause the speedy disappearance of the eruption and it may be a question of months only or years before the patient has a fresh outbreak. Certainly I think X-ray treatment is the best palliative measure we have in dealing with these cases.

As regards *dermatitis exfoliativa* the results have not been so satisfactory. I can only find evidence in the literature on this subject of one case of primary *dermatitis exfoliativa* which has been treated with X-rays. In this instance the eruption disappeared after several months of X-ray treatment, but whether as a result of the treatment or spontaneously is not clear. Two other patients with the secondary type, psoriatic or eczematous, were treated without any improvement.

Lichen planus is another skin condition which is greatly benefited and usually cured by radiation. All the different types seem to respond well. This condition usually develops slowly and runs a chronic course. The sites of predilection are the flexor surfaces of the forearms, the inner aspects of the thighs, the *glans penis* and the buccal mucosa. However, the eruption is not always limited to these situations. It may become quite generalized. As you may know, *lichen planus* may last for months or even years if not suitably treated. The subjective symptoms of the condition are intense burning and itching which in time exert a serious effect on the mental attitude of the patient. Under X-radiation these subjective symptoms are promptly relieved and in a short while entirely disappear, whilst the eruption gradually undergoes involution.

And this leads me to speak of a condition which is not uncommon and which causes the physician in attendance no small amount of worry. I refer to the condition which I will designate primary or essential pruritus, that is to say pruritus which is not secondary to an eruption and with no definite cause. This condition is exceedingly difficult to deal with by the ordinary methods. The condition may be generalized or regional. The sites usually affected are the anal region, the scrotum and the vulva. X-radiation in these conditions is most gratifying, usually the intense itching is relieved promptly and will entirely disappear after quite a short course.

I may mention here that there is no objection to the use of certain antipruritics along with the radiations, so long as the stronger preparations are avoided. Such remedies as menthol, dilute carbolic acid or camphor may be useful, but oil of cade and sulphur should be avoided.

Hyperhidrosis of the localized varieties is most amenable to X-radiation. Generalized hyperhidrosis is not suitable for the treatment. Where the excessive sweating is confined to the palms of the hands, the soles of the feet or to the axillæ the treatment is undoubtedly the best that can be adopted. There are reasons why this treatment is not suitable in cases of sweating of the scalp or face. Occasionally one sees localized hyperhidrosis in such unusual locations as the cheek, forehead or a single round

area on the back or on one arm or leg. This can be quickly cured by X-radiation.

Cheilitis exfoliativa usually associated with *herpes labialis* is quickly cured by irradiation. I have had one patient with this condition since coming to Hobart who did remarkably well. The condition in this patient had resisted for a long time the usual methods of treatment.

Alopecia is a condition which theoretically should do well under X-ray treatment and it is a well-known fact that patients who have had the whole scalp depilated by X-rays during the treatment of ring-worm, may ultimately get a very fine growth of hair. In cases of *alopecia areata*, however, the results following X-ray treatment are not always so satisfactory. Personally I have had good results, but not invariably.

The treatment of the opposing condition, namely hypertrichosis, by means of X-rays has caused much discussion among Röntgenologists. Some regard the rays as the method of election, whilst others believe it is a risky method and should only be used in selected cases, whilst a third group condemns the method outright. Personally I associate myself with those of the second class who say that in properly selected cases the rays may be used, but with great caution. It should be remembered that the skin of the face is particularly sensitive to the rays and if great care is not exercised, there is almost sure to be wrinkling which may be a greater disfigurement even than the superfluous growth of hair.

Hodgkins's disease is a condition which may properly be considered here. There is no doubt that X-rays will effect a temporary clinical cure in this condition. Recurrence is the rule, but with the intelligent use of X-rays patients may be kept alive and in comfort for years.

I have recently treated a patient with Hodgkins's disease sent to me by Dr. Morris and the improvement was most evident and reasonably quick. After six erythema doses, I was able to discharge the patient apparently cured.

There are numerous types of skin affection which are due, directly or indirectly, to the tubercle bacillus, chief among which, perhaps, is lupus.

With the exception of hypertrichosis and cancer, *lupus vulgaris* was the first skin disease to be treated with X-rays. Schiff is reported to have cured a patient with the disease as early as 1896. Other workers in England, Germany, France and America followed closely on his heels and the results obtained were so spectacular that it was thought at the time that a specific had been found for the affection. As time went on various X-ray sequelæ made their appearance owing to the massive doses used and most workers then adopted a much more conservative manner.

There were instances reported in which epithelioma developed in the resultant scar tissue of *lupus vulgaris* which had been treated with X-rays and undoubtedly the rays were in some of these cases responsible. At the same time it must be remem-

bered that epithelioma does develop as a sequel in *lupus vulgaris* when X-rays have not been used at all.

It must also be remembered that in the early days when these undesirable sequelæ followed X-ray treatment there were no means of measuring accurately the dose and nothing was then known about filtration of the rays.

There is now no evidence to show that epithelioma is commoner in patients with *lupus vulgaris* which has been treated with X-rays under modern technique than it is in patients who have not been so treated.

After a careful study of the statistics of patients treated by X-rays and by photo-therapy one is forced to the conclusion that the latter method must take the first place as a remedial agent.

Forchheimer issued a report based on 1,200 cases treated at the Finsen Light Institute between 1896 and 1906 and the following are the results given: Cures, 60%; patients under treatment, 18%; treatment discontinued, 11%.

Of the total cured (seven hundred and twenty one) thirty-three had been free from recurrence for ten years or more, two hundred and eighty-nine for from five to ten years, three hundred and six for from two to five years and ninety-three for less than two years. In a further study the subjects were divided into initial cases and inveterate cases. In the former class 76% were cured, whilst in the latter 51% were cured.

These results we all must admit are exceedingly good and up to the present time X-rays cannot show anything to equal them. Unfortunately, however, there is difficulty in obtaining Finsen light treatment for many sufferers and where that is the case, X-rays are probably the next best method of treatment.

Of the various types of *lupus vulgaris* the hypertrophic and ulcerative varieties do the best under X-rays. The atrophic type is more resistant. *Lupus erythematosus* does not respond so satisfactorily as does *lupus vulgaris* and wherever it is possible ultra-violet rays should be used.

Tuberculosis orificialis whether primary or secondary to *lupus vulgaris* or other tuberculous lesion is greatly benefited by X-radiation. Speaking generally tuberculous ulcerations of the mucosæ do remarkably well under X-ray or radium treatment.

The X-ray treatment of *verruca vulgaris* or common wart is so successful that no apology is needed for mentioning it here. Out of a total of eighty-eight patients treated by MacKee and reported by him, seventy-four were cured, six were improved and eight showed no improvement. Twenty-six were cured by one application and there were no recurrences over a period of several years.

Callosities or *verruca plantaris* is also treated so satisfactorily that this method should always be the method of election. One or two doses are all that are usually required.

Hard corns are rather recalcitrant and usually require three or four intensive doses to effect a cure. Soft corns are much more amenable.

With regard to nævi and the various keratodermata the utility of X-rays is limited. The well known port wine stain is quite unaffected by the rays. *Nævus vasculosus* or strawberry marks can be cured by the rays, but the effect of β rays of radium is so superior that where available they should be used.

Cavernous angiomas may be successfully treated by X-rays. I have at the present time under treatment an infant with such a condition involving the whole nose and the deeper structures.

Four sub-intensive doses have been given at intervals of a month and the result is most satisfactory. This patient was seen by Dr. Stoddard Barr and Dr. Rogers. Dr. Rogers will be able to give his opinion on the case presently.

Nævus pigmentosus is not benefited by X-rays unless very large doses are given and this procedure is strongly contra-indicated owing to the possibility of inducing malignant diseases in the pigmented area.

Ichthyosis and congenital keratoderma respond to X-ray applications in a rather remarkable manner, but recurrence is so constant and so rapid that it is not worth while.

One intensive dose in these conditions will cause the thickened horny layer to be shed and the skin beneath has a perfectly normal appearance.

Of the benign new growths affecting the skin keloid, whether spontaneous keloid or keloid developing in a scar, respond satisfactorily to X-radiation and what is of more importance, do not recur. Young, small, rapidly-growing keloids involute more rapidly than the larger and older growths.

Various other methods have been employed in treating this condition, such as excision with the knife, electrolysis, cauterization, carbon dioxide *et cetera*, but all these methods fail to prevent recurrence. Usually the resultant keloid is bigger than the one just treated. X-radiation is the only known method of treatment which will positively preclude recurrence.

Another benign new growth of the skin which may be successfully treated with X-rays is rhinoscleroma. This hitherto annoying and intractable disease can now be permanently cured with X-rays or radium. In the early granulomatous stage the affection yields quickly. In the later stage when the nose is greatly enlarged and the tissue is stone-like in consistency, the disease is more recalcitrant. Usually the disease begins in the mucous membrane of the inner nares. It may then involve the entire nose and upper lip.

Before closing this paper I must refer briefly to one or two of the malignant new growths of the skin which may be satisfactorily treated by X-rays.

This subject has received very close investigation and a most voluminous literature exists on the matter today. Exhaustive statistics have been evolved showing the relative merits of this and other methods of treatment. Time will not permit me to go into the question at any length and I will endeavour to summarize the evidence for and against.

In treating basal-cell epithelioma it is more or less clearly established that X-rays will produce

over 90% of cures in unselected cases. Recurrences were noted in 13%, so that the net results are estimated to be over 80% which may be regarded as permanent cures.

Now let us see how these figures compare with those associated with other methods of treatment.

A series of one hundred and seventy-eight basal-cell epitheliomata were treated by surgical excision. Most of these cases were treated at the Johns Hopkins Hospital. A study of these statistics shows that 86% could be regarded as permanent cures. Thus it would seem there is very little difference in the efficacy of these two methods. In certain cases the cosmetic result may be better when X-rays are used than when excision is employed.

Sherwell claims to have obtained 90% of permanent cures with the vigorous use of acid nitrate of mercury after curettage, but as his statistics have not been carefully compiled, further evidence would seem to be necessary to confirm his results.

There seems to be a consensus of opinion that such remedies as carbon dioxide snow, superficial caustics, electrolysis and other similar agents are of very little use. What then should be the method of election in this serious condition? The object of any treatment should be to destroy every malignant cell. If this can be accomplished, then a cure results. All the reliable statistics show that this end is accomplished most successfully by excision and X-radiation, therefore one or other of these two methods should be adopted. Both possess advantages and disadvantages and it seems to me that a good practice would be to combine the two in many instances. Every surgeon knows how difficult and even impossible it is to be quite sure that he has excised every malignant cell. In all instances in which there is the least doubt, X-ray treatment should follow the excision.

There are also certain situations, such as the inner canthus where it is difficult to perform excision without a bad cosmetic result. Lesions in this situation are more suitable for X-radiation.

Anyone who has seen a rodent ulcer properly treated with X-rays, must have been struck with the remarkable results.

It is quite a common experience to see such a condition clear up completely after two intensive doses, the resultant scar being almost unnoticeable. This is quite a special feature of radiation treatment and in many instances is of considerable importance.

Cutaneous epithelioma of the squamous or prickle-cell type may develop in the skin or mucosa. There is no doubt that where these lesions are recognized sufficiently early, they can be eradicated by X-rays or radium properly applied. When the growth is well developed it is probably wiser to associate X-rays with excision. Prickle-cell epithelioma is an exceedingly dangerous condition and metastasis may take place at any moment. Early diagnosis, therefore, is essential to success. Paget's disease is another skin condition which may be successfully treated with the rays. Special precautions have to be taken when the affection involves the breast nipple, as mammary carcinoma may also be present.

Reports of Cases.

SUPRACONDYLAR FRACTURE OF THE HUMERUS TREATED BY HOOK EXTENSION.

By A. J. CUNNINGHAM, M.B. (Sydney),
Surgical Registrar, Sydney Hospital.

I AM indebted to Dr. C. E. Corlette for permission to publish the histories of the following two patients:

W.B., a man, aged thirty years, was admitted to Sydney Hospital on November 28, 1922, under the care of Dr. Corlette. He gave a history of having fallen backwards from a ladder on his left arm which became doubled under him.

On admission to hospital examination showed the presence of extensive swelling around the left elbow with much bruising. Active movements were impossible. Crepitus was elicited and there was a definite prominence at the posterior part of the elbow joint. It was supposed that this prominence was due to the lower end of the upper fragment of the humerus. There was also pain and slight swelling over the left wrist.

An X-ray examination by Dr. Edwards revealed the presence of a supracondylar fracture of the left humerus with considerable overlapping of the bones and flexion of the lower fragment on the forearm. There was also a comminuted left Colles's fracture. The arm was put up temporarily on an internal angular splint.

Measurements of the left arm showed that there was 1.8 centimetres (three-quarters of an inch) shortening between the acromion process and the internal condyle of the humerus.

Under ether anaesthesia and acting under the supervision of Dr. Corlette, I reduced the Colles's fracture and the deformity disappeared. An unsuccessful attempt was made to reduce the humeral fracture. It was decided that open reduction would probably not be successful, owing to the tendency of the lower fragment to slip forwards. A Schmeer's tractor was therefore used. This was placed on the condyles of the lower fragment and by steady traction the lower fragment was pulled into position and the deformity disappeared. The arm was put up on a Thomas's splint. Gooch's splinting was used to support the arm. A cord was fastened from the tractor to the end of the splint and a weight of 3.15 kilograms (seven pounds) was attached to the end of the splint over a pulley. The forearm was placed at right angles to the arm and was supported by strapping extension and a counterweight of 0.45 kilogram (one pound). After the application of these splints the measurements of the affected arm were found to be identical with those of the other arm. The patient had very little pain.

Examination by X-rays on November 30, 1922, showed end-to-end apposition of the fragments, though there was still considerable anterior displacement of the lower fragment. The forearm was placed in a position of extension at 160° and was supported by a flannel bandage. The pain that was occasionally present, was always referred to the fracture at the left wrist. There was no splint on the left forearm.

On December 4, 1922, X-ray examination showed the position of the fragments of the humerus to be excellent from both the antero-posterior and lateral aspects.

On December 8, 1922, the forearm was flexed to 90° and three days later this increased to 75°.

On December 14, 1922, sixteen days after its application, the hook was removed. The arm was put into a position of full flexion and was fixed to the chest wall with adhesive plaster.

On December 16, 1922, X-ray examination showed the position of the arm to be good.

On December 20, 1922, the adhesive plaster was removed and passive movement was commenced. The arm was put again into a position of acute flexion.

On December 21, 1922, the patient was discharged from hospital. He had practically no discomfort in his elbow and there was no sign of infection of the wounds caused by the points of the tractor.

On January 14, 1923, the arm was supported in a triangular bandage. Massage was started to the arm three

time a week. There was voluntary movement through a range of 60° from the flexed position.

On January 16, 1923, the arm was being used freely and muscular power was moderately good. Voluntary movements were possible through a range of 120° from the flexed position. Movements at the wrist were normal.

On March 26, 1923, voluntary movements were possible through a range of 130°. There was practically no disability from the arm.

The patient is now back at his usual occupation of painting.

R.W., a man, aged twenty-four years, was admitted to Sydney Hospital under the care of Dr. Corlette on February 3, 1923. He was suffering from an injury to the elbow which had been caused that day by a blow from a piece of metal following an explosion.

Examination revealed the presence of a compound fracture of the left humerus in the lower third. The wound was situated in the postero-lateral aspect of the arm just above the elbow joint. There was also a wound of the left side of the thorax with some surgical emphysema. The arm was placed on an internal angular splint.

On February 5, 1923, the patient was examined by X-rays and the radiologist reported the presence of a supracondylar fracture of the left humerus with forward displacement of the lower fragment.

On February 14, 1923, the wound was practically healed. Under ether anaesthesia a Schmerz's tractor hook was applied to the condyles of the left humerus and the arm was put up on a Thomas's splint. A similar type of extension was used to that used with the previous patient. The weight applied to the splint was 4.5 kilograms (ten pounds). Before the application of the tractor there had been 1.8 centimetres (three-quarters of an inch) shortening in the arm. This disappeared after the application of the tractor. The arm was comfortable.

On February 18, 1923, it was found by an X-ray examination that there was some forward and radial displacement of the lower fragment, but that the bones were lying end-to-end.

On February 22, 1923, under ether anaesthesia, Dr. Corlette exposed the ends of the bone and manoeuvred them into accurate apposition by means of a sharp hook. The arm was left on the Thomas's splint and the Schmerz's tractor was left in position. The arm was placed in an acutely flexed position.

On February 23, 1923, there was no discomfort, but considerable oozing was present. There was some evidence of pressure on the ulnar nerve.

On February 27, 1923, the arm was again examined by X-rays and the position of the fractured bone was found to be good.

On March 8, 1923, the arm was put into a triangular bandage at an angle of 70°. There was voluntary movement through about 20° of flexion from that position. Union was firm.

On March 11, 1923, the movement of flexion was found to be improved. Paresis of the ulnar nerve had practically disappeared, some numbness of the little finger alone remained. There was no discomfort.

On March 27, 1923, the patient was having massage to the arm and forearm. He was able to feed himself with ease. There was voluntary movement at the elbow joint with a range of 75°.

On April 23, 1923, the patient was back at his usual work and was swinging a heavy hammer. There was practically no disability. Some trace of ulnar nerve paresis still remained.

The skiagrams of both cases will be found on pages 225 and 226.

Comments.

By C. E. CORLETTE, M.D., Ch.M. (Sydney),
D.P.H. (Cambridge).

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THE cases recorded above by Dr. Cunningham are the first two in which the Schmerz spring-grip tractor or "hook," as it is sometimes called, has been employed by me in fractures of the humerus. This method has been

adopted by my surgical colleagues on the staff of the Sydney Hospital and myself in some hundreds of cases, chiefly of fracture of the femur. In 1922 we had sixty-two cases of fracture of the femur in the wards in addition to sixty-eight fractures of the tibia alone, seventy-seven of the fibula alone and sixty-two of the tibia and fibula.

The spring-grip tractor is the simplest and most satisfactory instrument. I do not use the "ice tongs" for this purpose. I have designed and tried many modifications of the instrument and those used in the wards of the Sydney Hospital have been found to be the most effective patterns. I have designed other patterns on the same principle for application to the calcaneus in cases of Potts's fracture, fractured calcaneus and fractures of the lower third of the leg. These are very comfortable. The little punctures invariably heal without difficulty after the removal of the instrument.

I have used the orthodox systems in the treatment of fractures, but have been critical and dissatisfied. These include the Thomas's system, which is uncomfortable and painful for the patient. Measurements reveal that this method frequently leaves a very undesirable amount of shortening. The nurse is supposed constantly to adjust the ring against the ischial tuberosity, in such a way that the same portion of skin is not pressed on all the time. In my experience the ordinary stock hospital splint invariably presses on the pubic bone. This is a tender spot and the constant pain caused is almost impossible to tolerate. The adhesive plaster strip drags on the skin and this shows signs of interference with its nutrition.

The Robert Jones's extension frame may be well enough for the light bodies of children, but it is dirty and uncomfortable.

In these circumstances, I decided some years ago to adopt the Schmerz spring-grip tractor as an experiment. Immediately there was a magical change in the wards. Properly applied, this instrument was found to be extremely comfortable. Since it has been in use, it has become the quite usual thing to get no shortening after fractures of the femur. I do not say that this is invariable, but the results are far better than ever attained before. In a few instances it is still necessary to carry out open plating or grafting. Of course, other suitable apparatus are used together with the tractors and unremitting care is essential. The use of the tractor under these conditions has revolutionized the treatment of fractures in the Sydney Hospital. I hope to publish in the future a comprehensive report of the results obtained by this method.

Reviews.

TUBERCULOSIS AND ITS PREVENTION.

IN "Rest and Other Things," by Dr. Allen K. Krause,¹ we have a selected series of his instructive addresses on tuberculosis questions which almost make a complete survey of its problems. These should be of much interest and help to all anti-tuberculosis workers.

From the title it might have been expected that "rest" would have been fully dealt with, but while much is said, its practical application is hardly discussed. The infection in childhood is logically described and should correct many erroneous ideas, but more stress might have been laid on the fact that the longer a child lives, the greater will be the opportunity for infection. Passing from childhood infection, the author shows how adult infection may occur therefrom and suggests measures to prevent such a happening. While admitting in his anti-tuberculosis measures that he has no fully satisfactory remedy at present, he insists in his address on the tuberculosis problems on the need for a full and adequate programme that will proceed effectively along all lines; in his final address he deals comprehensively with what are the elements of such a scheme. The work is a little book of plain talk on tuberculosis problems, but it is also the expressions of a very wide experience. It should prove valuable to everyone interested in public health questions.

¹ "Rest and Other Things: A Little Book of Plain Talks on Tuberculosis Problems," by Allen K. Krause; 1923. Baltimore: Williams & Wilkins Company; Crown 8vo., pp. 159. Price: \$1.60.

The Medical Journal of Australia

SATURDAY, SEPTEMBER 1, 1923.

"Insulin."

IN the issue of last week we published three papers dealing with the treatment of diabetes with "Insulin." This subject has been presented to the public through articles in the daily press and the public has in consequence been misled. Very little, indeed, is known about the matter, but that little is of some importance. In the course of time other competent observers will supplement the first Australian records by Dr. C. T. C. de Crespigny and Professor Brailsford Robertson. A considerable period will have to elapse before the full therapeutic significance of this patented preparation can be ascertained. In the meantime, no doubt, hundreds of diabetics will be hastened to their graves by its means. Hitherto public propaganda has been employed to create a demand on the part of patients for this form of treatment. The public has been told much that is not true concerning the remedy and it is now convinced that diabetes can be cured by this means. This is not the first time that this kind of tragedy has been enacted. Senior medical practitioners will remember the ghastly sequel to Koch's introduction of tuberculin and the wholesale misuse of this potent remedy as a result of a demand by the public. The daily press was then responsible for the boosting of the new, ill-understood treatment. Whenever patients demand a certain form of treatment, the medical profession is placed in a most unenviable position. During the stage of trial of a powerful and dangerous remedy, medical practitioners who do not possess facilities for close observation and continuous control, will be well advised to refuse to bear the responsibility. Whether it will ever be safe to exhibit "Insulin" without a continuous estimation of the blood sugar content, cannot be determined at present. The ordinary medical practitioner is not trained as a bio-chemist and consequently he will not attempt to measure the sugar content of the blood himself. It

is, therefore, clear that for the present and the immediate future this treatment should not be applied unless arrangements can be made for a thorough bio-chemical control.

The articles in last week's issue do not provide an unequivocal reply to the question concerning the value of "Insulin" in the treatment of diabetes. Even under favourable circumstances it cannot cure the pathological lesion on which the disease rests. Moreover all competent users of this remedy have pointed out that it should not be given to patients whose glycosuria can be controlled by dietetic means. It would seem that the remedy is too potent for safe use in very advanced conditions and that material prolongation of life is improbable when the pancreatic lesion is very extensive. There remain, therefore, the moderately severe and moderately advanced forms of disease. How far glucose can be metabolized by "Insulin" under these circumstances is not yet known. In the Adelaide patients "Insulin" seems to have reduced the sugar content of the blood and consequently the glycosuria somewhat better than simple dieting. It must be remembered that very surprising results are at times obtained by scientific control of the diet, even in severe diabetes. It is assumed that the defect in diabetes is produced by the absence of stimulation of the complex mechanism of glycolytic function. There is ample experimental evidence that the islands of Langerhans exercise a supervisory control over this function. It is not known whether the pancreatic hormones, the hypothetical substances governing the glycolytic function, act on the liver cells, the cells of muscle and the cells of other tissues for this purpose or whether the mechanism is more self-contained. It would almost seem as if the insular cells were endowed with the primary action of throwing into the blood stream the necessary quantity of the sugar-splitting ferment to keep the sugar content of the blood at its normal level. If this be the case, it is evident that the injection of an extract would deprive these insular cells of their regulating function, although the power to respond to a stimulation might still be preserved. If the injury were so severe that production of the glycolytic ferment were impossible, the stimulation would be unavail-

ing. It is held by many that the insular cells have only a regulating function and that in healthy conditions an accumulation of sugar in the blood finds its reply in the liberation of a dose of hormone which is carried to the liver and other tissues where material can be supplied to dissociate the excess of sugar. If this be correct, the exhibition of an extract of insular cells containing active hormone should under all circumstances suffice to bring about a complete metabolism of the sugar present in the blood. There would seem to be very little suggestive evidence in favour of this view. But even if this were the true function of the islands of Langerhans, the supply of the hormone artificially introduced could not be balanced as it is physiologically by the more or less urgent demand of a varying amount of sugar in the blood. That the hormone is unstable within the body is evident from the estimations of the sugar content of the blood of diabetics treated with "Insulin." It is certainly very unstable outside the body.

There is another aspect of this question that needs some consideration. Macleod and his assistants have carried out a very valuable piece of work in bio-chemistry. They have exhibited ingenuity in their researches and have established the important fact that the hyperglycæmia of animals with inflammatory or traumatic lesions of the pancreas can be reduced or eliminated by the injection of extracts of pancreas deprived of its proteolytic ferments. At the present moment "Insulin" is being prepared under special licence from the patentees at the Commonwealth Serum Laboratories. It is also being prepared by Professor Brailsford Robertson and by some workers at the Royal Prince Alfred Hospital in Sydney. No patent can prevent any bio-chemist from making an extract of pancreas under conditions which would deprive the extract of its proteolytic action. "Insulin" preparations are said to lose their activity within a very short time. If this be true, and there is no reason to doubt it, the supply of pancreatic extracts for this form of treatment must be prepared locally. The medical profession has a right to demand that all pancreatic extracts sold for this purpose, no matter what their names, shall be active. The only guarantee possible is for every preparation of this kind to bear on the

label the date of manufacture and the "unitage." Experience will soon reveal how rapidly an extract which yields one unit of activity per cubic centimetre, deteriorates. The "Insulin" of the Commonwealth Serum Laboratories and that made by Professor Brailsford Robertson are standardized after preparation. It would be interesting to have the test repeated after a sample has travelled to Queensland and is being used in the treatment of a diabetic patient.

All this goes to show that the subject is extremely complex and that the sooner the public can be persuaded to forget the word "Insulin," the better it will be for the unfortunate victims of this uncanny disease.

Current Comment.

SPLenic ANÆMIA.

THE anæmias have long presented great difficulty to the hæmatologist from the point of view of pathogenesis. Some of this difficulty is referable to the confusion that has arisen in the differentiation of one form from another and from the inclusion of two or more forms under one name. Unfortunately the location and the nature of the primary process in some of these diseases cannot be determined with certainty. Moreover, there is often much doubt in regard to the exact definition of the several diseases. In the case of splenic anæmia there is an absence of unanimity in regard to its nature, its essential characteristics and its pathogenesis. Many authorities use the term as a synonym for Banti's disease. Osler preferred to define it as a primary splenomegaly with anæmia, while Rolleston distinguishes chronic splenic anæmia from Banti's diseases. Banti described a disease which started as a splenic enlargement without anæmia, which was later accompanied by more or less severe anæmia, diarrhœa, enlargement of the liver and at times jaundice and which terminated with cirrhosis of the liver and ascites. It is now recognized that whether the term Banti's disease be employed to signify the three stages of this disease or only the terminal, ascitic stage, the process involved is a primary fibrosis of the spleen. The blood changes include a reduction in the number of leucocytes and a considerable increase in the fragility of the red blood corpuscles. Various attempts have been made to trace the fibrotic process to a special infection, but irrefutable evidence has not yet been produced. There is, however, little doubt that it is an infective process. Quite recently Dr. William C. Chaney has recorded the results of a careful research into the clinical and pathological characters of the disease in sixty-nine patients operated on at the Mayo Clinic. His data are interesting and of some importance.

In the first place¹ Dr. Chaney produces much evidence to show that the histological appearance of the spleen is insufficient to enable the pathologist to distinguish the disease from other affections characterized by splenomegaly. The capsule is usually thickened, often greatly thickened. The reticulum is more prominent than in the normal organ as a result of the fibrosis and perhaps of the increased cellular activity. There is considerable sclerotic change in the artery of the Malpighian corpuscle, although Dr. Chaney does not believe that this is dependent directly on the general fibrosis of the organ. It is of interest to note that the sclerosis of the supplying artery of the Malpighian corpuscles was most evident in syphilis of the spleen and in hæmolytic splenomegaly, somewhat less in pernicious anæmia and myelogenous leucæmia and least evident in splenic anæmia. In a few spleens, however, the degree of this change was very considerable. In the specimens examined the pulp was found to be decreased in amount, as a rule, but there were exceptions. Similarly the lymphoid tissue was usually much lessened, although in some spleens it was actually increased. In the general fibrotic process the capillaries become invested with fibrous tissue and in some instances the walls manifest a hyaline change. All these changes vary within wide limits in individual organs and it is, therefore, impossible to base a diagnosis of splenic anæmia on the presence of these signs. Moreover, all are seen in other forms of splenic enlargement. The Malpighian corpuscles are, as a rule, prominent and defined. Neither degenerative nor fibrous changes were detected in the corpuscles. The average size of the corpuscles was smaller than normal, although the extremes were within the normal range. The number of Malpighian corpuscles was ascertained by a system of counting in several measured areas. It was considerably smaller than the number found in a normal spleen. It appears that the size of the corpuscle varies with the degree of fibrosis of the organ; the greater the fibrosis, the smaller do the Malpighian corpuscles become. Many are apparently squeezed out of existence. At the same time, the central artery of the corpuscles is eccentrically placed as the fibrous tissue encroaches on the latter. The total size of the spleen varies between 120 grammes and 2,290 grammes. The author gives the average weight of the spleen in Gaucher's disease as 3,031 grammes, in the lymphoma group as 2,249 grammes, in splenic anæmia as 1,015 grammes, in pernicious anæmia as 940 grammes, in myelogenous leucæmia as 937 grammes, in hæmolytic jaundice as 920 grammes, in syphilis as 778 grammes and in tuberculosis as 501 grammes. These weights were determined on removal of the spleen at operation.

Turning to the clinical aspects of the disease, Dr. Chaney gives the average age of the sixty-nine patients at the time of operation as thirty-three. As the average duration of the disease at that time worked out at seven years, accepting the statements of the patients, the average age of onset would be twenty-six. He is inclined to the opinion that the

duration of the disease was considerably longer and this would place the onset at an earlier age. The first complaint was of a mass in the abdomen in twenty-nine patients, hæmorrhage in twenty and weakness in nineteen. Inquiry elicited that hæmorrhage either from the stomach, bowel or elsewhere occurred in forty-one of the sixty-nine patients. It was often severe. Pain was noted by thirty-two patients, but in twenty-five the localization was indefinite. Moreover, a cause other than the enlarged spleen was discovered in the abdomen of fifteen of these patients. The liver was enlarged in twenty-six patients. This was determined at the operation. Cirrhosis was said to have been present thirty times, but in eighteen instances the liver was not enlarged. It is thought that there is no relationship between the size of the spleen and the size of the liver. Ascites occurred in twenty-four of the patients. Only one of these patients had an enlarged but not cirrhotic liver. Another worker at the Mayo Clinic who has made an extensive study of the liver in splenic anæmia, has come to the conclusion that the liver is never normal, even in the earliest stages of the disease. At times the changes are very slight, but they are always present. The experience at the Mayo Clinic has been the same as in other hospitals in regard to the danger of the disease when the stage of manifest enlargement of the liver and ascites has been reached. Of the sixty-nine patients operated upon, twelve died within forty days of the operation. Of these twelve seven had severe cirrhotic changes. It is, therefore, obvious that the spleen should be removed before this complication has advanced to a recognizable stage.

There can be no doubt that the process starts in the spleen and continues to have its chief seat in the spleen. Removal of this organ, if undertaken before it is too late, suffices to arrest the process and the patient may become apparently well. What the nature of the infective process is has not yet been determined.

PROTEINS AND RENAL LESIONS.

A SHORT time ago L. H. Newburgh conducted some experiments with a view to prove that the end products of protein metabolism act as renal irritants like mercury, uranium and chromium, when their concentration is unusually high. Drs. L. M. Polvogt, E. V. McCollum and Nina Simmonds² have endeavoured to control these results, because they were not satisfied that Newburgh had taken sufficient precautions to exclude disturbing variations in their dietaries. In their own experiments the authors were at great pains to select a diet for rats which would cover the needs of the animals in all respects. To this diet an excess of protein was added. They give full descriptions and some illustrations to prove that under favourable conditions the high protein diets lead to congestive lesions in the kidneys. In some rats there was definite degeneration of the epithelium of the tubules.

¹ *The American Journal of the Medical Sciences*, June, 1923.

² *Bulletin of the Johns Hopkins Hospital*, May, 1923.

Abstracts from Current Medical Literature.

GYNÆCOLOGY AND OBSTETRICS.

Blood Sugar Content During Pregnancy and the Puerperium.

WALTER N. ROWLEY (*American Journal of Obstetrics and Gynecology*, January, 1923) worked in the obstetric section of the Mayo Clinic on the blood sugar concentrations during pregnancy and the puerperium, in order to compare the blood sugar content of the maternal blood at or near term with that thirty-six to forty-eight hours after delivery. He found that the average range for blood sugar concentration in normal pregnant women is 0.09% to 0.11%, which is the same as that found in non-pregnant women. The average value in fifty-three estimations of the sugar content of blood during pregnancy was 0.11%. The average value in thirty-two estimations of the sugar content of fetal blood taken from the umbilical cord immediately after delivery was 0.09%. The average value for twenty-two estimations of the sugar content of the blood on the second day *post partum* was 0.14%. Placental interchange of glucose is undoubtedly dependent on the higher concentration of sugar in the blood of the mother. The influence of muscular exertion during labour is not a factor in *post partum* hyperglycemia. Anesthesia with ether is a contributing but not a determining factor in producing a rise in the sugar concentration of the cord blood. Asphyxia produces a greater rise than anesthesia with ether. Involution of the uterus cannot be shown to be the primary factor in producing *post partum* hyperglycemia. The general physiological change associated with involution may be a factor in producing the latter. In certain types of toxemia there is an increase in the blood sugar concentration.

Uterine Hæmorrhage.

HERMAN GRAD (*American Journal of Obstetrics and Gynecology*, January, 1923) has analysed the histories of one hundred women who had been affected with uterine bleeding in the Women's Hospital, New York. The histories and pathological findings were carefully studied. He recognizes six classes according to the ætiological factors that are causing the loss of blood from the uterus. These are: (i.) Pregnancy, (ii.) infection, (iii.) neoplasms of the uterus and ovaries, (iv.) displacements, lacerations and congestion, (v.) distress due to disturbance of balance of the glands of internal secretion, (vi.) constitutional causes and blood dyscrasia. The pathological changes in the endometrium play the most important rôle in uterine bleeding. This occurred in 70% of the patients. Infection was the cause in thirty-four, neoplasm in twenty-five and hyperfunction of the ovaries in eleven. The uterine bleeding is caused

also by vascular engorgement of uterus and adnexa and focal infection of the generative organs. Pregnancy, including ectopic gestation, plays a very important part in causing uterine bleeding. Constitutional causes, on the other hand, have small ætiological significance. After incomplete abortion the endometrium undergoes the physiological changes incident to menstruation, although the uterine cavity may harbour retained secundines which cause continual uterine bleeding. Uterine bleeding associated with infection is due to a diseased endometrium the adnexæ remaining perfectly normal. Curettage of the uterus is a very important procedure in uterine bleeding, as it may depend entirely on the condition of the endometrium in spite of the fact that other pathological entities may be present, such as diseased adnexa and fibroids. Two or more factors may be operative in the same patient at the same time. A condition called by the author *adenoma polyposum* is held by him to be responsible for a large number of uterine hæmorrhages. When uterine glands penetrate the musculature they may cause uterine bleeding. In some women the cause of the bleeding remains obscure; no pathological changes have been found to account for it. In these conditions the author falls back on the hypothesis of "endocrine distress." This condition has been called ovarian hyper-function. The bleeding at times depends on displacements and lacerations and is due to vascular engorgement and focal infection. In submucous fibroids the bleeding is due to changes in the endometrium overlying the neoplasm.

Toxæmia of Pregnancy, with Acute Yellow Atrophy of the Liver.

F. R. OASTLER AND H. G. JACOBI (*American Journal of Obstetrics and Gynecology*, March, 1923) give a full report of the illness of a patient who had severe toxæmia of pregnancy with symptoms of acute yellow atrophy of the liver. The patient was admitted to hospital pregnant and acutely ill. Ectopic gestation was suspected and an abdominal section performed, but the pregnancy was found to be uterine. She rapidly developed signs of acute yellow atrophy of the liver which induced them to empty the uterus. After a very stormy illness of twenty-five days' duration she recovered. Chemical tests and controls were used throughout the illness. In the blood the urea nitrogen, uric acid, creatinin, sugar content, icterus index and carbon dioxide combining power of the blood plasma were determined at each examination. The urine was examined for bile, albumin, casts, leucin and tyrosin. At the onset there was considerable retention of all the nitrogenous products, the urea, uric acid and creatinin. On the ninth day the creatinin content diminished; this was the first indication of a favourable outcome. Leucin and tyrosin were present in the urine on the sixth day. The authors claim that the condition was of extreme interest because they

were fortunate in being able to study the chemical changes in the blood and urine throughout the course and because many of the clinical and laboratory findings of acute yellow atrophy were present and yet recovery ensued. Further, it shows the benefit of laboratory work as an aid to diagnosis and prognosis.

Studies of Eclampsia.

O. M. GRUZHIT (*American Journal of Obstetrics and Gynecology*, April, 1923) has undertaken blood typing to determine incidence of incompatibility of the blood of the mother and her offspring in normal pregnancy as well as in the "toxæmias." He concludes that the hereditary *Anlage* determines the blood group of the offspring. This same *Anlage* determines whether the mother's blood agglutinates the fetal or not. In this preliminary work on eclampsia it has been found that the mother's serum agglutinates her baby's red cells *in vitro*. It is presumed that such agglutination may occur *in vivo* in the mother's blood stream, resulting in a "thick" viscous blood. The symptoms and pathology may readily be explained, the author claims, on the basis of the "thick" viscous colloidal state of the blood.

Adenomyoma of Fallopian Tube.

ARTHUR E. MAHLE (*Surgery, Gynecology and Obstetrics*, July, 1921) presents the following conclusions: (1) The term tubal adenomyoma is correctly applied to adenomyomata arising in the tube, since the origin of the glandular portion is from the mature epithelium of the tube. (2) The hypotheses of the origin of tubal adenomyomata from the Wolffian and Müllerian ducts are untenable. (3) Tubal adenomyomata are in every case associated with an inflammatory condition and are probably end products of the process of inflammation. (4) Some relation exists between sterility and the presence of adenomyomata of the Fallopian tube. (5) There are some slight histological differences between tubal adenomyomata and those commonly found in the uterus; but this difference is most probably due to the place of origin and subsequent development and not to the ætiological factor.

Complement Fixation in Gonorrhœa.

T. E. OSMOND (*The Lancet*, June 10, 1922) carried out an investigation on three hundred males and seven hundred females in the venereal clinic of Saint Thomas's Hospital on the complement fixation test in gonorrhœa. After describing his technique and results, he concludes that the test is of real value in the diagnosis of gonorrhœa. A positive result is obtained at a very early stage, much earlier than a reaction to the Wassermann test in syphilis. A relatively high percentage of reactions is obtained in patients suffering from active gonorrhœa (average 86.5%). There were only three "false positives" in the one thousand

cases and in these gonorrhœa could not be absolutely excluded. A "doubtful" reaction to the test is at least suspicious and the test should be repeated. Tests of cure are laborious and unsatisfactory. A positive result frequently persists for twelve months or more after apparent cure.

NEUROLOGY.

Dystrophia Myotonica.

W. J. ADIE AND J. G. GREENFIELD (*Brain*, Part I., 1923) write that *dystrophia myotonica* is a disease *sui generis* within the group of heredo-familial degenerative disorders. It forms a link between other well-known members of this group in that two of its cardinal symptoms—myotonia and muscular atrophy—are identical with the same symptoms in Thomsen's disease and the familial muscular dystrophies, respectively. At the same time it introduces a new kind of disorder into this group of diseases in the form of certain degenerative phenomena in parts outside the muscular and nervous systems. The fully-developed disease is confined in the main to one generation, where it occurs in some members of a number of families of the same child rank in relation to a common ancestor. The members of preceding generations do not suffer, as a rule, from myotonia or muscular atrophy, but they are often affected with cataract which appears at an early age in succeeding generations. Genealogical inquiry reveals progressive deterioration in some branches of the stock. In the dystrophic generation itself some members remain healthy, some may have cataract alone, some may suffer from the disease in an incomplete form, one of the cardinal symptoms, say muscular atrophy, being absent, while others present the combination of muscular atrophy and myotonia with certain extra-muscular symptoms for which the name *dystrophia myotonica* has hitherto been reserved. A majority of the latter conform to the classical descriptions of Batten, Steinert and Curschmann, but these descriptions apply to a type only, to a syndrome which is merely one aspect of an heredo-familial disease with diverse manifestations. The disease in all its aspects then remains undesigned, but this discrepancy will be removed of the name *dystrophia myotonica* is transferred to the disease itself from the syndrome to which it is at present applied. For the syndrome, which also requires a distinctive appellation, "*dystrophia myotonica*, type Batten-Steinert-Curschmann," would suffice.

The Ductless Glands in Dementia Præcox.

M. E. MORSE (*Journal of Neurology and Psychopathology*, May, 1923) has studied the pathological anatomy of the gonads, pituitary, thyroid and adrenals in twelve male and fifteen female patients with *dementia præcox*

who died under forty-five years of age. He concludes that from the pathological side there is very little evidence of a primary atrophy of the gonads in *dementia præcox*, with the possible exception when the disease develops on a basis of mental defect. The fibrosis which is sometimes found in the sex glands, is not an isolated change, but is frequently present also in the hypophysis and occasionally in the thyroid. The atrophy, when present, can be accounted for by the somatic diseases from which the patient suffered. This explanation is not only simpler and less hypothetical than that of a primary atrophy, but it is more in accord with the facts, if they are critically studied. It agrees also with recent experimental and pathological work on the ductless glands, particularly the gonads. The condition of the endocrines in *dementia præcox* requires more study, but the authors state that there is no one uniform condition of the gonads or other endocrines dependent on the disease process. The main factors which determine the condition of the glands at autopsy, are the nature and duration of the terminal disease, the state of the nutrition and possibly in some cases an underlying defect of development which is expressed in feeble-mindedness or the hypoplastic constitution.

Dural Endothelioma and Hemicraniosis.

WILDER G. PENFIELD (*Journal of Neurology and Psychopathology*, May, 1923) has searched the records of the National Hospital, Queen Square, London, and found ten cases of dural endothelioma and hemicraniosis, a somewhat rare condition. Anatomically the growths are osteogenetic endotheliomata. They may appear in the frontal, parietal or temporal bone and the typical slow-growing bony prominence associated with local pain, often of a stabbing character, should be considered pathognomonic. The growths show no tendency to local recurrence after removal, even when muscle and scalp are invaded. There is a considerable immediate risk due to the great vascularity of the involved bone. Horsley's method was to cut through normal skull and rapidly remove the whole tumour *en masse*. If the medical profession were better acquainted with the condition, it should be possible in a large percentage of cases to advise operation before the onset of cerebral symptoms.

The Pathology of Herpes Zoster.

G. MARINESCO AND S. DRAGENESCO (*Revue Neurologique*, January, 1923) places *herpes zoster* along with *herpes febrilis* and *herpes preputialis* and also epidemic encephalitis in one class, which they call *épithélioses neurotropes*. All are due to the operation of an ultra-microscopic virus, located chiefly in the nuclei, but also in the protoplasm of the cells at the lesion and all are further characterized by the presence of certain cell inclusions. In the case of *herpes zoster* they be-

lieve that the virus is carried in the lymphatic vessels of the nerves from skin to posterior root or Gasserian ganglia. Thence the virus may be propagated in the cerebro-spinal fluid and give rise to an abundant lymphocytosis. It follows that the eruption of *herpes zoster* is not a trophic manifestation, but a reaction to the presence of a specific virus in the skin, a virus which histologically and experimentally has analogies with the virus of other forms of herpes and with that of epidemic encephalitis.

A New Conception of the Elements of Sensation.

JOHN S. B. STOPFORD (*Brain*, Parts III. and IV., 1922) thinks that no nerve of clinical importance is distributed exclusively to skin. Consequently after section, there is bound to be some disturbance of so-called deep sensibility and it seems quite impracticable to divide sensation into superficial and deep varieties which accompany muscular branches, since the sensory supply of the finger joints undoubtedly arises from the digital nerves. There is also probability that other forms of deep sensibility are in part, at least, transmitted by branches arising independently from the main nerve. The various forms of sensation included under deep sensibility may be dissociated. In recovery reappearance of the recognition of contact and appreciation of pain on excessive pressure occur early, as a rule during the stage of protopathic recovery. Definite improvement in localization and signs of recognition of passive movement of joints occurs very late and not until there is evidence of epicritic recovery. Deep sensibility ought to be divided, like cutaneous sensation, into epicritic and protopathic varieties. The sense of pressure is crude in comparison with appreciation of the direction, localization and range of passive movement in a joint. The former may have thalamic, the latter cortical representation.

Spirochætosis of the Cerebro-Spinal Fluid.

D. O. RIDDEL AND R. M. STEWART (*Journal of Neurology and Psychopathology*, February, 1923) examined the spinal fluid of twenty-three patients suffering from general paralysis of the insane for the presence of *Spirochæta pallida*. Twenty-two fluids contained no spirochætes, but enormous numbers were found in a fluid obtained from a patient with juvenile general paralysis. Their presence in the cerebro-spinal fluid was verified on six consecutive occasions which covered a period of forty-one days. Thereafter they disappeared and could not again be found, although twelve more punctures were made. Attempts at cultivation failed, but the mobility of spirochætes preserved *in vitro* was retained for twelve days. Peculiar spore-like bodies attached to the ends or sides of the organisms were seen with the aid of dark-ground illumination and similar bodies continued to exist in the fluid when spirochætes had completely vanished.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Sydney Hospital on July 13, 1923. The meeting took the form of a series of demonstrations by the members of the honorary staff.

Stab Wound of the Thorax and Abdomen.

DR. GEORGE BELL, O.B.E., showed a male patient, aged thirty-five years, who had been admitted to hospital on June 8, 1923, suffering from four stab wounds which had been inflicted by a large knife half an hour before admission. The patient's temperature had been 36.5° C. (97.6° F.) and his pulse-rate eighty-eight per minute. Respiration had been painful and the rate thirty-three. Three of the wounds had involved the parietes only. The fourth wound had been situated in the ninth intercostal space on the left side and in the anterior axillary line. Through this wound portion of the omentum had protruded. Rigidity of the abdominal muscles had been present. A general anæsthetic had been administered. A portion of the ninth rib had been excised and the left pleural cavity opened. It had contained about four hundred cubic centimetres of blood. A wound of the diaphragm had been discovered two and a half centimetres in length and through this wound omentum had protruded. The contaminated piece of omentum had been removed and the remainder had been returned to the abdominal cavity through the wound in the diaphragm. After suture of the wound in the diaphragm and removal of blood from the pleural cavity the wound of the thoracic wall had been closed. An exploratory incision had been made through the left rectus muscle, but no perforating wound of any abdominal viscus had been discovered. A small amount of blood had been present in the peritoneal cavity. The abdominal wound had been closed. Convalescence had been uneventful. The highest temperature recorded had been 37.9° C. (100.2° F.) on June 11 and it had been normal by June 14. The patient had been discharged on July 5, 1923. Dr. Edwards had examined the patient in the X-ray department and had reported that the pleura was thickened and that adhesions were present at the left base and that the lung was not collapsed. Dr. Bell said that he had shown this patient in order to emphasize the ease with which access might be obtained to the diaphragm by the trans-thoracic route after excision of the seventh, eighth or ninth rib. This afforded the best method of approach in dealing with wounds of this organ. It had been extremely useful in the treatment of diaphragmatic hernia which had been an occasional sequel of gun shot wounds of the chest during the war.

Pernicious Anæmia.

DR. J. MACDONALD GILL showed several patients who were suffering from pernicious anæmia and were being treated according to the method advocated by Hurst.

Excision of the Head of the Radius.

DR. C. E. CORLETTE showed a boy, aged twelve years, who had fallen off a ladder three months previously and fractured the upper end of his left radius. On skiagraphic examination it had been discovered that the head of the radius was completely separated from the shaft of the bone. Dr. Corlette explained that in these circumstances the head of the bone acted as a foreign body. It interfered with movement at the elbow joint and was cut off from all blood supply. He had made an incision over the head of the bone and removed it. Three weeks after the operation the function of the arm had been normal.

Osteitis Deformans.

DR. CORLETTE also showed an old man who was suffering from an atypical form of *osteitis deformans*. The patient had been well until two years previously. Pain had developed in the right gluteal region and this had been of a dull aching character. The patient had said that five weeks previously he had noticed a swelling in the middle of the right arm. His eye had bulged forwards. The left side of his face had become partially paralysed; he had

become deaf in the left ear during the previous five weeks and had complained of what was apparently a trigeminal neuralgia. He had become nearly blind in the left eye and had only been able to distinguish light from darkness. Several investigations had been carried out. The serum had not yielded a reaction to the Wassermann test. The blood count had revealed no abnormality and the urine had been normal. It had contained no Bence Jones proteoses. Dr. Corlette pointed out that nodules were palpable on the skull and that thickening of the clavicles was present. A large tumour was present on the lateral aspect of the right humerus in its middle third. There was bowing of the right femur and nodules were palpable on the tibia. A condition of *genu varus* was present. Dr. Edwards had reported that the appearances present were those of *osteitis deformans*. The appearances of the skull were very unusual. There were areas of rarefaction and thickening of the inner table was present. Dr. Edwards had thought that it was possible that a sarcomatous infiltration of the skull was present in what had previously been the site of *osteitis deformans*.

Irritable Ulcer.

DR. CORLETTE also showed a patient on whom he had operated for irritable ulcer of the ankle. He said that irritable ulcer was a common condition in the region of the ankle and the dorsum of the foot. The patient demonstrated had suffered from an ulcer over the external malleolus of each foot for several months. The operation had consisted in the cutting of the nerve supply of the area by means of a tenotome. In this instance as in many of the others, he had found that immediate relief had been obtained and that the ulcer had healed rapidly with the formation of a healthy scar.

Surgical Instruments.

DR. CORLETTE showed a series of instruments used by him in the treatment of fractures of the femur and of Potts's fracture. Those consisted in Schmerz's hooks, modifications of Schmerz's hooks and a vice designed by himself for the forcible approximation of the condyles of the femur after their separation by fracture.

Leucoplakia.

DR. R. H. BRIDGE showed a man who had first noticed a swelling in the right side of the neck in the region of the jugulo-digastric glands. This had rapidly increased in size and had attained its maximum size after a period of twelve weeks. The patient who was an intelligent individual, had informed Dr. Bridge that he had been treated by a ship's surgeon by iodine administered internally and that the size of the tumour had been reduced by half. Dr. Bridge had presumed that the ship's surgeon had given the patient potassium iodide. On examination it had been found that a swelling of the jugulo-digastric glands was present about the size of a hen's egg. Its fixed and indurated base had suggested the presence of carcinoma and its softened surface had suggested the presence of gumma. In the mouth opposite the last molar tooth a scar had been found and there had also been a granular area extending from the uvula to the base of the tongue. This had resembled a syphilitic lesion in appearance. Potassium iodide in doses of six grammes (ninety grains) and *liquor hydrargyri perchloridi* in doses of twelve cubic centimetres (three fluid drachms) had been given daily for fifteen days, but no alteration in size had occurred. The tumour had been removed from the neck. It had adhered to the internal jugular vein and it had been necessary to remove 7.5 centimetres (three inches) of this structure. Immediate section of the growth had revealed a consistency resembling a green pear. Pus had been present and the growth had contained secondary deposits of carcinoma. Dr. Bridge said that it had been difficult to locate the primary growth. Suspicion had fallen on the patch on the palate. Section of portion of this had revealed the presence of typical leucoplakia with a tendency to cell nest formation in the outlying processes. It had been presumed that an early embolus had taken place into the glands of the neck. Dr. Bridge had recognized that removal of the tumour would have necessitated a very formidable operation. It would have been necessary to have removed the palate, the jaw and half the tongue. He had destroyed the patch of leucoplakia by diathermy. At the

time of demonstration a healthy scar was present. Unfortunately on one area on the tonsil and hard palate a recurrence of leucoplakia was present.

Lupus Erythematosus.

DR. NORMAN PAUL showed a patient who was suffering from *lupus erythematosus* involving the face, ears, scalp and the mucous surfaces of the mouth. The condition had been present for nine years and as a result of freezing with carbon dioxide snow was almost cured. Dr. Paul pointed out that the tendency to scar formation in *lupus erythematosus* was evidenced in this patient's condition. There was permanent cicatricial alopecia and the superficial destruction of the mucous membrane of the palate and adjacent areas had caused the patient's speech to become affected.

Coccogenic Sycosis.

Dr. Paul also showed a man who was being treated for coccogenic sycosis of the beard and moustache region. The condition had been present for some years and was characterized by general redness of the affected areas with only a few pustules centred by hairs. Dr. Paul said that he had noticed the not infrequent occurrence of coccogenic sycosis following *impetigo contagiosa* after shaving. On this account the patient had received a vaccine containing streptococci and staphylococci. Definite improvement had taken place. At the commencement of treatment the face had been covered with pustules, but after only four weekly injections the condition had almost disappeared. Previous treatment by X-rays for epilation had not been successful.

Seborrhœic Warts.

Dr. Paul also showed a patient suffering from seborrhœic warts on the cutaneous surfaces of the trunk. These were numerous and extensive and showed all gradations from the early flat, buff coloured lesions through brown to large blackish coloured lesions. They were associated, as was usually the case, with small angiomas.

Myasthenia Gravis.

DR. HAROLD RITCHIE showed a woman, aged twenty-one years who was suffering from *myasthenia gravis*. Two years previously the patient had noticed that her speech was nasal in character. It had remained about the same for six months when she had had a nervous breakdown. Dysphagia had been present for twelve months and facial paresis for nine months. Occasional regurgitation of food into the nares had taken place. Ptosis of the left eyelid had occurred during this period whenever the patient was tired. The patient's sister had stated that the symptoms had gradually become worse, that she (the patient) was unable to play more than one set of tennis, that the symptoms were much less noticeable in the early morning and after rest and that speech became inarticulate after three-quarters of an hour's conversation. Dr. Ritchie said that the patient's temperature, pulse-rate and respiratory rate were normal. He pointed out that her facies were expressionless, that there was partial obliteration of the nasolabial cleft and that articulation was distinctly nasal. Bilateral paresis of the facial muscles was present. With a galvanic current of three milliamperes contraction of the facial muscles on the right side was more powerful than on the left. Both remained more or less constant. With a faradic current the contractions of muscles on the right side of the face diminished with stimulation until they were almost absent; the contractions of the left side were very feeble and soon disappeared. In the upper extremities the reactions of the muscles were normal and the movements were good. In the inferior extremities the movements were good. In regard to the cranial nerves Dr. Ritchie said that there was no impairment of the muscles supplied by the third nerve, but the muscles tired easily. Facial paresis was present. Paresis of the pharynx was present and paresis of the soft palate was more noticeable after work. The tongue could be protruded without difficulty, but could not be maintained in this position. The knee jerks were exaggerated. The plantar reflexes were plantar in type and the other reflexes were normal. There was no disturbance of sensation and no trophic changes were present. Dr. C. F. Warren had examined the

patient and had found no abnormality in the antra or sinuses. The vocal cords moved equally well. He had been unable to find anything abnormal which would explain her symptoms. No abnormality had been detected in the gastro-intestinal, cardiac, genito-urinary or respiratory systems. The serum had not reacted to the Wassermann test.

Osteo-myelitis of the Mandible.

DR. H. SKIPTON STACY showed a boy, aged four years, who had been admitted to hospital on October 14, 1921, suffering from a large abscess on the left side of the face. His temperature had been 40° C. (104° F.), the pulse-rate had been thirty and the respirations had numbered one hundred and forty in the minute. On October 17, 1921, a tooth on the right side had been removed and much pus had been discharged. Ten days later a lower molar had been removed from the left side and much pus had escaped. The wound had continued to discharge pus and on November 14, 1921, an incision had been made below the ramus of the mandible. A hole had been burred through the necrosed bone and dependent drainage established. Much offensive pus had come away. A few days later the wound had been opened again and more pus had escaped. A skiagram taken on November 14, 1921, had revealed the presence of necrosis of the jaw. The patient had left the hospital. He had been re-admitted on February 28, 1922, suffering from two discharging sinuses which on being probed had been found to lead down to dead bone. On February 28, 1922, sequestrectomy had been performed. Forceps had been pushed through into the sinus in the neck and dependent drainage had been established. The wound had continued to discharge freely and the general condition of the patient had improved. On March 24, 1922, an abscess pointing in the neck had been opened. On March 29, 1922, a skiagram had shown the presence of osteo-myelitis with several small sequestra. On May 16, 1922, an incision of 2.5 centimetres long had been made parallel to the lower border of the mandible. Several small sequestra had been removed. On further examination it had been found that the whole ramus of the mandible including the articular surface was diseased. It had been removed with bone forceps. The patient had rapidly improved in health. He had been discharged from hospital on May 29, 1922. He had been re-admitted on July 6, 1922, with a discharging sinus on the left side of the neck and a swelling under the left ear. A skiagram had shown the presence of a small sequestrum. The opinion of Dr. Zeile had been obtained in regard to the possibility of preventing deformity in view of the amount of the jaw that had been removed. Dr. Zeile had advised waiting eruption of the teeth before coming to any decision. Dr. Stacy pointed out that a considerable amount of regeneration of bone had taken place and that the child had quite a useful jaw.

Scarring of the Palate.

DR. C. F. WARREN showed a male patient, aged sixteen and a half years, who was suffering from scarring of the palate. The parents had complained that the boy was suffering from increasing mental dullness, lack of concentrating power, headaches and aprosopia. The boy's tonsils and adenoids had been removed nine years previously. Dr. Warren pointed out that mouth breathing and nasal obstruction were very noticeable. There was extensive scarring of the whole of the soft palate. A remnant of tonsil was present on the left side and the uvula was absent. It was proposed to remove the remnant of the tonsil and perform a plastic operation on the soft palate to allow more mobility and establish nasal breathing.

Gumma of the Frontal Region.

DR. WARREN also showed a woman, aged fifty-six years, who had been admitted to hospital on May 11, 1923, complaining of pain in the left frontal region and of double vision of two or three months' duration. On admission to hospital oedema, redness and swelling had been present over the region of the left frontal sinus and the left orbit. These areas had been very tender to touch. There had also been proptosis and displacement of the left eye downwards and outwards. Enlarged veins had been present crossing over the area. The patient had complained of

numbness over the area supplied by the left supraorbital nerve. She had said that she could hear crackling on palpation of this area. A mass the size of an almond had been attached to the bone in the left temporal region. The patient had had the right breast removed five years previously for cancer. Dr. Warren had decided to operate. He had removed the eroded and honeycombed walls of the left frontal sinus. Below this a layer of very thickened *dura mater* had been found. Frontal headache and vomiting had been present throughout the convalescence and the wound had been slow in healing. On May 29, 1923, the patient's serum had failed to react to the Wassermann test. On the same date a skiagram of the skull had been taken. The radiologist had reported the presence of a large amount of bone destruction, probably syphilitic. The pathologist had reported that he considered the condition probably inflammatory and that it consisted of fibrous tissue (in places myxomatous), inflammatory cells and thin walled blood vessels. As a possibility of new growth had been present, Dr. Jamieson had been consulted. He had reported that he could find no evidence of malignant new growth in the tissue. As far as he had been able to ascertain, the mass was mainly composed of fibro-myxomatous tissue which in places was the seat of inflammatory change. He had thought that it was either a low type of granulation tissue or a fibro-myxomatous polypus. On May 31, 1923, the patient had been given iodides. The condition had improved at once, the headache and vomiting had ceased and the wound had rapidly healed.

False Elbow Joint.

DR. ARCHIE ASPINALL showed a man who had been admitted to hospital on July 4, 1921, with a compound fracture of the humerus. The fragments had been wired. The wound had become septic and Carrell-Dakin irrigation had been used. On September 6, 1921, he had been discharged from hospital with a traction splint of the Jones's type applied to the humerus. The patient had been re-admitted to hospital on December 19, 1921, with a discharging sinus over the site of the fracture posteriorly and with no sign of union. On December 20, 1921, a vertical incision had been made posteriorly above the elbow joint; the wire and several sequestra had been removed. The cavity had been curetted, gauze drainage had been carried out and Gooch's splinting had been applied. He had been discharged from hospital on December 24, 1921. On April 11, 1922, he had been re-admitted to hospital with a discharging sinus. On April 13, 1922, an incision had been made over the sinus and a sequestrum 7.5 centimetres long with several smaller pieces had been removed from the shaft of the humerus. Dr. Aspinall pointed out that a false joint existed at the site of fracture and that the functional result was good. A skiagram was demonstrated showing the condition of the false joint.

Skiagrams.

DRS. J. G. AND W. A. EDWARDS showed two series of skiagrams. In one series were shown several interesting general conditions including Charcot's disease of the knee joint in an advanced stage. There were also shown skiagrams of a calcified fibro-myoma resembling a vesical calculus and skiagrams of normal and infected head sinuses. The other series comprised various chest conditions. These were of exceptional clearness and showed a wealth of detail. These skiagrams had been taken at a distance of one metre (forty inches) from the target with a current the milliampère of which was one hundred and the voltage 50,000. The exposure had been less than one-tenth of a second. It was pointed out that with these fast exposures at a great distance the normal lung showed a great deal of marking. It was necessary to distinguish these markings from those of tuberculosis, new growth, pneumoconiosis *et cetera*. Examples of the various stages of these conditions were shown.

Dr. W. A. Edwards also showed some skiagrams taken from patients on whom Dr. George Bell had operated for ununited fracture by the insertion of massive bone grafts or by a "bone stepping" operation.

Paget's Disease of the Nipple.

Dr. W. K. INGLIS showed a series of specimens, photographs and micro-photographs in support of his views con-

cerning the nature and origin of Paget's disease of the nipple. He said that his investigations were not complete, but stated the opinion held by him in regard to the condition. Paget's disease of the nipple was neoplastic *ab initio* and was regarded as precancerous or better as a superficial cancer of low grade malignancy. It commenced in the lactiferous ducts probably near the surface of the nipple. In the majority of instances some ducts remained unaffected. From its site of origin the lesion extended by continuous spread upwards along the duct walls on to the skin surface and then outwards over the nipple and portion of the areola. It also extended downwards along the walls of the ducts to the acini. Sometimes it stopped short of the acini. The histological characters of the lesion in the ducts and on the skin surface had much in common and minor differences could be accounted for by variations in anatomical situation. The appearances presented by the lactiferous ducts constituted the most constant feature of Paget's disease and were quite different from those seen in other duct cancers. In Paget's disease the desquamation of the lining cells presented a striking contrast with the formation of complex papillomatous processes as seen in mammary duct neoplasms in general. The Paget's cells so often present in the skin lesions were also seen occasionally in superficial pigmented moles and were probably associated with some derangement of the metabolic activities of those cells whose function was to elaborate melanin. It was significant in this regard that most cases of extramammary Paget's disease occurred in pigmented areas such as the vulva, penis *et cetera*. Scirrhus carcinoma was not the cause of the disease but the sequel, truly a very common sequel, but nevertheless a sequel. Unlike the original lesion the secondary carcinoma was highly malignant. The scirrhus carcinoma in some instances at least commenced in the acini, possibly in others it commenced in the ducts. Once the scirrhus carcinoma had formed, it might permeate the lymphatics and lead to atrophic changes in the epiderm as suggested by Handley, or the cancer cells might enter the epiderm and produce effects closely simulating the changes seen in the skin lesions of Paget's disease (*confer Jacobaeus et cetera*). Paget's disease had much in common with the other precancerous conditions or superficial cancers of squamous epithelial surfaces, particularly leucoplakia of the tongue. The relation of leucoplakia to cancer of the tongue was much the same as that of Paget's disease of the breast to scirrhus cancer of the breast (when the two were associated). Paget's disease also linked up with Bowen's epithelioma, except that in the latter the lesions were mostly of the basal cell type. However, the specificity of basal and squamous types of epithelial neoplastic proliferation must not be held too rigidly, for occasionally both types were seen in different portions of the one neoplasm.

Pre-mycosis Stage of Mycosis Fungoides.

DR. LANGLOH JOHNSTON AND DR. GEORGE R. HAMILTON showed a male patient, aged sixty-six years, who was suffering from the pre-mycotic stage of *mycosis fungoides*. The history as given by the patient was that in February, 1923) his right lower leg had commenced to itch. Nothing abnormal had been seen on the skin. The itching had been intense and after two or three weeks the left leg had begun to itch as well. In a few weeks it had spread up the thighs to the trunk and the itchiness had been situated chiefly on his back. About the end of March, 1923, his left leg had become in places faintly pink-red in colour. This coloration had appeared in patches on all affected areas. The patient had come to the Sydney Hospital Skin Department on May 7, 1923, and had been admitted to the wards on May 12. On admission his skin had shown a general redness which was polymorphous in character and most noticeable on the abdomen. The redness had been blotchy and the edges not well defined. For the most part there had been no infiltration, but on close examination a very slight thickening had been detected in certain of the patches. There had been no vesiculation. No anaesthesia had been detected in any of the patches and the ulnar nerves had not been thickened. The patient had not snuffed. Adenitis had been present in each groin. The outer half of each eyebrow had been denuded of hair. His nails had been normal. *Pityriasis capitis* had been

present and his condition had been diagnosed as one of seborrhoides and he had been treated accordingly. The serum had not reached to the Wassermann test. By June 18, 1923, he had improved and the blotchy redness had appeared more red. The question of the condition being one of the pre-mycotic stage of *mycosis fungoides* had been considered and to a trial area two half-pastille doses of X-rays had been given. By June 26, 1923, no improvement in the trial area had taken place. On July 12, 1923, it had been noticed that one of the patches in the left deltopectoral region had become definitely thickened and, though not exactly a nodule, it had been excised and sent to the pathological department for report. Dr. Walton Smith had reported that on examining the section the most noticeable feature had been the presence of masses of cells in the corium. The predominating cells had been small and round (small lymphocytes). In addition there had been plasma cells; some of these had been large and had contained more than one nucleus. Fibroblasts had also been present. Where the cell accumulations were greatest, they had caused through pressure a thickening of the epithelium (*rete malpighii*) with an absence of papillae. In one part a patch of keratosis had been found. Hæmorrhages had been present. Dr. Walton Smith had regarded the histological appearance as compatible with a diagnosis of *mycosis fungoides*. At the same time Dr. McMurray had been asked to see the patient and he had expressed the opinion that the condition was one of the pre-mycotic stage of *mycosis fungoides*. The patient would be given larger and more frequent doses of X-radiation.

Congress Notes.

THE AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

The following is the provisional programme of the first session of the Australasian Medical Congress (British Medical Association).

SECTION I.—MEDICINE.

Tuesday, November 13, 1923.

Morning Session: Combined meeting with Section of Radiology.—"The Diagnosis of Early Pulmonary Tuberculosis."

Afternoon Session: Combined meeting with Sections of Neurology and Pathology.—"Epidemic Encephalitis."

Wednesday, November 14, 1923.

Morning Session: Papers.

Thursday, November 15, 1923.

Morning Session: Papers.

Afternoon Session: Combined meeting with Sections of Surgery and Pathology.—"Renal Inefficiency."

Friday, November 16, 1923.

Morning Session: Discussion on "The Role of Focal Infections in Disease." Papers.

Afternoon Session: Combined meeting with Sections of Surgery and Radiology.—"The Treatment of Exophthalmic Goitre."

Saturday, November 17, 1923.

Morning Session: Full Congress Meeting.—"Tuberculosis."

Papers submitted up to the present include: "Cholelithiasis: Cholesterol Metabolism in its Relation to Pathogenesis. Diagnosis and Treatment"; "Anaphylaxis in its Relation to the Diagnosis and Treatment of Hay Fever and Asthma"; "The Causation of Chronic Hydrocephalus in Meningococcal Meningitis"; "Tuberculin in the Hands of the General Practitioner"; "Digitalis and Quinidine in Auricular Fibrillation"; "Auricular Fibrillation: Its Clinical Manifestations and Treatment"; "The Value of Fractional Test Meals"; "Hydatid Embolus"; "Insulin in Diabetes."

II.—SURGICAL SECTION.

Tuesday, November 13, 1923.

Morning Session: Paper by the President of the Section, "Urology as Applied to Children," followed by a discussion. Address by Sir William Macewen.

"Surgery of the Prostate." Selection of cases for operation; pre- and post-operative treatment; review of end results; selection of type of anaesthesia.

To be opened by papers and followed by a discussion.

Afternoon Session: Continuation of discussion on "Surgery of the Prostate." Demonstration of results of deep X-ray therapy with exhibition of cases.

Wednesday, November 14, 1923.

Morning Session: "The Surgical Treatment of Hydatid Disease." To be introduced by papers dealing with recent diagnostic methods; the treatment of hydatid of liver, lung, bone and special situations and investigations into the life history and method of development of hydatid cysts.

To be followed by discussion.

Thursday, November 15, 1923.

Morning Session: "The Surgical Treatment of Exophthalmic Goitre." To be introduced by papers dealing with method of estimating basal metabolism and the value of such estimations in cases of goitre; selection of cases for operation; various technique of operation with results; treatment of cases of malignant goitre.

To be followed by discussion.

Afternoon Session: Combined meeting with Sections of Medicine and Pathology.—"Renal Insufficiency." Papers will be read by members of the sections taking part.

To be followed by discussion.

Friday, November 16, 1923.

Morning Session: Combined meeting with Section of Diseases of Children.—"Treatment of Empyema." Papers will be read by members of the Sections taking part.

To be followed by discussion.

Afternoon Session: Combined meeting with Sections of Medicine and Radiology.—Papers will be read by members of the sections taking part.

To be followed by discussion.

Saturday, November 17, 1923.

Morning Session: General Meeting.—"Tuberculosis."

III.—SECTION OF GYNÆCOLOGY AND OBSTETRICS.

Tuesday, November 13, 1923.

Morning Session: Address by the President of Section, "The Issues of Life and Death." Paper, "Treatment of Surgical Conditions Resulting from Labour." Discussion.

Afternoon Session: Papers and Lantern Demonstration.

Wednesday, November 14, 1923.

Morning Session: Paper, "Toxæmia of Pregnancy."

Thursday, November 15, 1923.

Morning Session: Combined meeting with Section of Diseases of Children.—"Breast Feeding." Combined meeting with Section of Radiology.—"Uterine Tumours."

Afternoon Session: Demonstrations and Practical Work.—Ante-Natal Clinic, Women's Hospital.

Friday, November 16, 1923.

Morning Session: Paper, "Treatment of Gonorrhœa in Women." Discussion. Papers.

Afternoon Session: Papers. Demonstrations of Cases at the Venereal Diseases Clinic, Queen Victoria Hospital.

IV.—SECTION OF PATHOLOGY AND BACTERIOLOGY.

Tuesday, November 13, 1923.

Morning Sessions: "Wassermann Reaction." Papers.

Afternoon Session: Combined meeting.—"Epidemic Encephalitis."

Wednesday, November 14, 1923.

Morning Session: "Pneumococci and Serum Treatment of Pneumonia." Papers.

Thursday, November 15, 1923.

Morning Session: "Summer Diarrhœa and Dysentery." Papers.

Afternoon Session: Combined meeting with Sections of Surgery and Medicine.—"Renal Inefficiency." Demonstration at Walter and Eliza Hall Institute.

Friday, November 16, 1923.

Morning Session: Papers. Discussion on tuberculosis from pathological aspect.

Afternoon Session: Papers. Demonstration at Commonwealth Serum Laboratories.

Saturday, November 17, 1923.

Morning Session: General meeting of Congress.—"Tuberculosis."

Papers have been promised on the following subjects: "Cancer," "Anaphylaxis in Relation to Asthma and Hay Fever," "Pleuro-Pneumonia."

V.—SECTION OF PREVENTIVE MEDICINE AND TROPICAL HYGIENE.

Tuesday, November 13, 1923.

Morning Session: Combined meeting with Section of Pathology and Bacteriology.—"Tuberculosis." (a) Statistical summary by the President; (b) Australian incidence as shown by: (i.) *Post mortem* evidence, (ii.) von Pirquet tests, (iii.) Subcutaneous tuberculin tests; (c) Tuberculosis in Relation to Economic and Social Conditions; (d) Tuberculosis Among School Children; (e) Prevalence of Bovine Infection; (f) Tuberculosis Infection in Milk.

Afternoon Session: (g) Summary of Report of Australian Royal Commission on Tuberculosis; Occupational Tuberculosis; (h) Tuberculosis Among Uncivilized Races; (i) Dispensaries and Their Value in Control of Tuberculosis; (j) Some Inherent Weakness of Sanatorium Treatment; (k) Review of Public Sanatoria Results.

Wednesday, November 14, 1923.

Morning Session: "Diphtheria Control.—(a) Bacteriology: Preparation of Antitoxin; (b) Morbidity and Mortality in Australia from Diphtheria, Including Influence of Climate; (c) Method of Discovery of Carriers Among School Children: Swabbing, Examination of Swabs and Virulence Tests; (d) Experience of the Schick Test—Bendigo and New South Wales; (e) Value and Use of Antitoxin and Toxin-Antitoxin Mixtures in Prophylaxis; (f) Role of Practitioner in Control of Diphtheria; (g) General Measures for the Control of Diphtheria, Including Legal Control and Disinfection.

Thursday, November 15, 1923.

Morning Session: "Industrial Hygiene."—(a) The Sciences Underlying Public Health; (b) The Place of Industrial Hygiene in the Field of Public Health; (c) Machinery for Collecting Information Dealing with Occupational Work and Comparison of Relative Value of Morbidity and Mortality Statistics; (d) Work and Workers; (e) Menstrual Disorders Among Women Workers; (f) Morbidity: Causes Among Tramway Employees; (g) Inquiry into Loss of Time Among School Teachers from Ill-health; (h) The Organization of an Industrial Clinic; (i) The Relation of Tuberculosis to Industry; (j) Industrial Welfare; (k) Colour Testing and Psychology of Colour; (l) Health of Female Telephonists.

Friday, November 16, 1923.

Morning Session: "Tropical Medicine."—(a) Review of Present State of Knowledge of: (i.) Malaria and Mosquitoes, (ii.) Filaria and Mosquitoes; (b) Activities of the Hookworm Campaign; (c) Data in Connexion with Certain of the Unclassified Fevers of Northern Australia; (d) The Parasites of Bowel Diseases as Observed in Tropical Australia; (e) Application to Australia of Measures of Tropical Hygiene Employed in Far East; (f) Investigation of Strains of Tubercle Bacilli in Northern Queensland; (g) General Discussion on Tropical Hygiene; (h) Paper.

Afternoon Session: (a) Necessity for Standard of Purity of Public Water Supplies; (b) Municipal Control of Sanitation; (c) Sanitary Environment: Legal Control.

VI.—SECTION OF OPHTHALMOLOGY.

Tuesday, November 13, 1923.

Morning Session: "Trachoma."

Afternoon Session: Hospital Demonstrations at Eye and Ear Hospital.

Wednesday, November 14, 1923.

Morning Session: "Syphilitic Lesions." "Arteriosclerosis."

Thursday, November 15, 1923.

Morning Session: "Myopia," "Analysis of Causes of Blindness," "Renal Disease."

Afternoon Session: "Marine Disasters Due to Defective Vision," "Strabismus."

Friday, November 16, 1923.

Morning Session: "Ionization."

Afternoon Session: Combined meeting.—"Exophthalmic Goitre."

Saturday, November 17, 1923.

Morning Session: General Meeting.—"Tuberculosis."

VII.—SECTION OF OTOTOLOGY.

Tuesday, November 13, 1923.

Morning Session: To be opened by the President of the Section.—"Surgery of the Mastoid Antrum," "The Role of Heath's Operation."

Afternoon Session: "The Tonsil; Anatomy, Pathology, Enucleation," "Remote Effects of Chronic Tonsillitis."

Wednesday, November 14, 1923.

Morning Session: "Otitic Meningitis."

Thursday, November 15, 1923.

Morning Session: "Sinusitis in Children," "Chronic Ethmoiditis and Frontal Sinusitis: Their Treatment and Association with Bronchiectasis."

Afternoon Session: In Conjunction with the Section of Neurology.—"Lesions of the Static Labyrinth and Cerebellum."

Friday, November 16, 1923.

Morning Session: "Hyperæsthetic Rhinitis, Hay Fever, Etc.," "Rhinitis Atrophica," "Tornwaldt's Disease."

Afternoon Session: Demonstration of clinical cases.

VIII.—SECTION OF NEUROLOGY AND PSYCHIATRY.

Tuesday, November 13, 1923.

Morning Session: "The Evolution of Speech Mechanism and Defects." Papers.

Afternoon Session: With Sections of Medicine and Pathology.—"Epidemic Encephalitis." Papers.

Wednesday, November 14, 1923.

Morning Session: "Legislative Machinery for Care of the Feeble-minded in Great Britain and Scotland," "The Correlation of Recent Advances in Cerebral Structure and Function with Feeble-mindedness and its Diagnostic Applicability," "Detection and Prevention of Feeble-mindedness."

Thursday, November 15, 1923.

Morning Session: Papers.

Afternoon Session: Combined discussion with Section of Otolaryngology.—"Cerebellum and Vestibulum Conditions."

Friday, November 16, 1923.

Morning Session: Papers.

Afternoon Session: Combined discussion with Section of Diseases of Children.—"Flaccid Paralysis and its Treatment."

IX.—SECTION OF DISEASES OF CHILDREN.

Tuesday, November 13, 1923.

Morning Session: Conjoint meeting with Section of Surgery.—"Urology in Children."

Presidential Address of Welcome.

Discussion on "Congenital Pyloric Obstruction."

Afternoon Session: General demonstrations at the Children's Hospital.

Wednesday, November 14, 1923.

Morning Session: Conjoint meeting with Section of Radiology on "Diagnosis and Treatment of Glandular Tuberculosis," "Dysenteric Conditions in Children."

Thursday, November 15, 1923.

Morning Session: Conjoint meeting with Section of Obstetrics.—"Establishment and Maintenance of Breast Feeding," "Rickets as it Occurs in Australia."

Afternoon Session: "Congenital Syphilis: Incidence, Diagnosis, Treatment."

Friday, November 16, 1923.

Morning Session: Conjoint meeting with Section of Surgery on "Treatment of Empyema," "The Essentials for Insuring Good Nutrition in Infancy as Bearing on the Prevention of Diarrhoea."

Afternoon Session: Conjoint meeting with Section of Neurology.—"Treatment of Flaccid Paralysis."

Saturday, November 17, 1923.

Morning Session: General Congress.—Discussion on "Tuberculosis."

X.—SECTION OF NAVAL AND MILITARY MEDICINE AND SURGERY.

Date Unfixed.

"The Organization of the Medical Profession in Time of War."—Introductory paper and discussion.

Saturday, November 17 and Sunday, November 18, 1923.

A staff ride will be held.

XI.—SECTION OF DERMATOLOGY.

Tuesday, November 13, 1923.

Morning Session: Opening Address by the President. Papers.

Afternoon Session: Demonstration of cases at Melbourne Hospital.

Wednesday, November 14, 1923.

Morning Session: Papers.

Thursday, November 15, 1923.

Morning Session: Papers.

Afternoon Session: Demonstration of cases at Melbourne Hospital.

Friday, November 16, 1923.

Morning Session: Papers.

Afternoon Session: Demonstration of cases at Melbourne Hospital.

Papers promised: President's Address: "Dermatology in Adelaide," "Preventive Dermatology," "Protein Sensitization in Eczema and Urticaria," "Radium-therapy: Its Present Position in the Treatment of Certain Skin and Malignant Diseases," "Protein Sensitization in Urticaria," "Urticaria and Protein Hyper-sensitiveness," "Causation of Rodent Ulcer in Australia," "Causation of Psoriasis," "The Early Cutaneous Manifestations of Congenital Syphilis."

XII.—SECTION OF RADIOLOGY AND MEDICAL ELECTRICITY.

Tuesday, November 13, 1923.

Morning Session: Conjoint meeting with Section of Medicine.—"Diagnosis of Early Tuberculosis."

Afternoon Session: (1) Sectional Meeting.—(a) Lung Examination, (b) Gall Bladder Examination, with exhibition of results of individual techniques. (2) Exhibition of cases treated by deep X-ray therapy.

Wednesday, November 14, 1923.

Morning Session: (1) Conjoint meeting with Section of Diseases of Children.—"Glandular Tuberculosis." (2) Sectional meeting.—"Radiography of the Cranium."

Thursday, November 15, 1923.

Morning Session: (1) Sectional meeting.—Exhibition and demonstration of special skiagrams. (2) Conjoint meeting with Section of Obstetrics and Gynaecology.—"Treatment of Uterine Tumours."

Afternoon Session: Sectional meeting.—(a) "Diseases of Bones and Joints" (b) General matters of interest.

Friday, November 16, 1923.

Morning Session: Sectional meeting.—(a) "Deep X-Ray Therapy"; (b) Treatment of Diseases of Glands."

Afternoon Session: Conjoint meeting with Sections of Medicine, Surgery and Ophthalmology.—"Treatment of Exophthalmic Goitre."

COMBINED MEETINGS OF SECTIONS.

(Openers are allowed twenty minutes and subsequent speakers seven minutes each.)

Tuesday, November 13, 1923, 10 a.m.

Sections of Medicine and Radiology.

Chairman: Dr. Marshall Macdonald, of Dunedin, President of the Section of Medicine.

"The Diagnosis of Early Tuberculosis."—**Openers:** Dr. S. A. Smith (for Medicine), Dr. J. G. Edwards (for Radiology). **Discussion:** Dr. C. B. Blackburn (for Medicine), Dr. A. T. H. Nisbet (for Radiology), Dr. D. R. W. Cowan, Dr. St. A. McDowall, a Repatriation Officer, Dr. S. S. Argyle or Dr. H. M. Hewlett.

Tuesday, November 13, 1923, 2 p.m.

Sections of Medicine, Neurology and Pathology.

Chairman: Dr. W. A. Campbell.

"Epidemic Encephalitis."—**Openers:** Dr. W. Marshall Macdonald, a Neurologist, Professor J. B. Cleland. **Discussion:** Dr. Holmes à Court, Dr. R. R. Stawell, Dr. W. G. Armstrong (Epidemiologist).

Thursday, November 15, 1923, 10 a.m.

Sections of Medicine, Surgery and Pathology.

Chairman: Professor J. B. Cleland.

"Renal Insufficiency."—**Openers:** Dr. Sinclair Gillies, Dr. D. W. Carmalt Jones, a Surgeon, Professor T. Brailsford Robertson. **Discussion:** Dr. S. F. Macdonald, Dr. J. F. Wilkinson, Dr. W. W. Johnson.

Friday, November 16, 1923, 2 p.m.

Sections of Medicine, Surgery and Radiology.

Chairman: Mr. G. A. Syme.

"The Treatment of Exophthalmic Goitre."—**Openers:** Professor A. E. Mills, a Surgeon, Dr. L. J. Clendinnen. **Discussion:** Dr. C. T. C. de Crespigny, Dr. H. C. Trumble, Dr. R. W. Chambers, Dr. G. N. Lorimer.

Thursday, November 15, 1923, 10 to 11.30 a.m.

Sections of Obstetrics and Diseases of Children.

Chairman: Dr. J. A. Cameron.

"Establishment and Maintenance of Breast Feeding."—**Opener:** Dr. Margaret Harper. **Discussion:** Dr. Vera Scantlebury, Dr. S. F. McDonald, Dr. Truby King, Dr. Helen Mayo, Dr. R. L. Forsyth.

Thursday, November 15, 1923, 10 a.m.

Sections of Obstetrics and Radiology.

Chairman: Dr. V. McDowall.

"The Treatment of Uterine Tumours."—**Opener:** Dr. Ralph Worrall. **Discussion:** Professor A. Watson, Dr. H. Flecker, Dr. L. J. Clendinnen, Dr. E. H. Molesworth, Dr. Charles Denis.

Friday, November 16, 1923, 10 a.m.

Sections of Surgery and Children.

Chairman: Dr. R. Gordon Craig.

"The Treatment of Empyema."—**Opener:** Dr. H. S. Newland. **Discussion:** Dr. Hamilton Russell, Dr. H. Douglas Stephens.

Thursday, November 15, 1923, 2 p.m.

Sections of Otolaryngology and Neurology.

Chairman: Dr. T. Spiers Kirkland.

"Labyrinthine Diseases."—**Openers:** Dr. A. W. Campbell, Dr. Frank Andrew. **Discussion:** Dr. V. Scantlebury.

Wednesday, November 14, 1923, 10 to 11.30 a.m.

Sections of Diseases of Children and Radiology.

Chairman: Dr. R. B. Wade.

"The Diagnosis of Glandular Tuberculosis in Children."—**Openers:** Dr. R. M. Downes, Dr. H. M. Hewlett.

Friday, November 16, 1923, 2 p.m.

Sections of Neurology and Diseases of Children.

Chairman: Dr. A. W. Campbell.

"The Treatment of Flaccid Paralysis."—Dr. R. B. Wade, Dr. L. G. Teece, Dr. N. D. Royle, Dr. A. V. Meehan, Dr. W. Kent Hughes.

PROVISIONAL PROGRAMME OF ENTERTAINMENTS.

Saturday, November 10, 1923.

Afternoon: Visitors will be entertained at tea at Flemington Racecourse by Mrs. Herman Lawrence.

Afternoon: Party at No. 9, Darling Street, South Yarra, by the Ladies' Hospitality Committee.

Sunday, November 11, 1923.

Morning: Official Church Services.

Afternoon: Private parties; fifteen ladies have offered afternoon teas. Reception by Dr. and Mrs. Murray Morton (over one hundred guests). Sir James and Lady Barrett

will entertain members of the Sections of Ophthalmology and Otolaryngology together with their wives and relatives accompanying them.

Monday, November 12, 1923.

Morning: Arrival of members.

Afternoon: Reception by the President at the University. Opening of New Anatomy School by Sir William Macewen, the Governor and Lady Stradbroke to be present.

Evening—8.30 p.m.: Inaugural meeting; the Governor-General and Sir William Macewen to be present.

Tuesday, November 13, 1923.

Afternoon: Proposed party at Botanical Gardens by Hospitality Committee of Victoria League of Victoria (six hundred guests suggested); visit to Zoological Gardens; visit to *Herald* Office (twenty guests); visit to Deaf and Dumb Asylum (twenty-five guests).

Evening: Returned Medical Officers' dinner; theatre party at Princess Theatre.

Wednesday, November 14, 1923.

Afternoon: The Governor-General's garden party.

Evening: Popular lecture; Sir John Macpherson, "The Emotion of Fear in Health and Disease"; Victorian Medical Women's Society reception at Wattle Tea Rooms; dance by Mrs. Dunbar Hooper.

Thursday, November 15, 1923.

Afternoon—2 to 5 p.m.: Visit to Sunshine Harvester Works; 3 p.m.: visit to *Herald* Office (twenty guests); visit to Fire Brigade; a number of small luncheon and bridge parties for visiting ladies; also golf, tennis; bridge party by Mrs. Devine.

Evening: Congress dinner, the State Governor to be present; ladies' reception at State Government House.

Friday, November 16, 1923.

Afternoon: Visit to "Pelaco" factory; visit to *Herald* Office (twenty guests); visit to Commonwealth Serum Laboratories; visit to National Museum.

Evening: The Governor-General's dinner to the chief officers of Congress; ball by the Victorian Branch of the British Medical Association in St. Kilda Town Hall.

Saturday, November 17, 1923.

Afternoon: Expedition to country, arranged by Melbourne Medical Association; visits to O'Shanassy Water Scheme (fourteen guests) and Wallaby Scheme (sixteen guests); all-day trip to Quarantine Station at Portsea.

Evening: Mermaid Play Society.

Sunday, November 18, 1923.

Possibly motor trips to Macedon, Frankston and other places of interest.

Monday, November 19, 1923.

Expedition to Yallourn (brown coal area) under the direction of Sir John Monash; limited in number.

Medical Appointments.

DR. DAVID CROMBIE (B.M.A.) and DR. V. R. ELPHICK (B.M.A.) have been appointed Government Medical Officers at Tocumwal and Cargillico, respectively, in New South Wales.

DR. S. O. COWEN (B.M.A.) has been appointed Honorary Out-Patient Physician to the Melbourne Hospital.

Medical Appointments Vacant, etc..

FOR announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xviii.

LADY BOWEN LYING-IN HOSPITAL, BRISBANE: Assistant Honorary Physician.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmmain United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phoenix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

- SEP. 5.—Victorian Branch, B.M.A.: Branch.
SEP. 6.—New South Wales Branch, B.M.A.: Nomination of two candidates to Federal Committee.
SEP. 7.—Queensland Branch, B.M.A.: Branch.
SEP. 11.—New South Wales Branch, B.M.A.: Ethics Committee.
SEP. 12.—Western Australian Branch, B.M.A.: Council.
SEP. 12.—Melbourne Pediatric Society.
SEP. 14.—New South Wales Branch, B.M.A.: Clinical Meeting.
SEP. 14.—Queensland Branch, B.M.A.: Council.
SEP. 14.—South Australian Branch, B.M.A.: Council.
SEP. 14.—Central Southern Medical Association, New South Wales.
SEP. 18.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
SEP. 19.—Victorian Branch, B.M.A.: Council.
SEP. 19.—Western Australian Branch, B.M.A.: Branch.
SEP. 19.—South Sydney Medical Association, New South Wales.
SEP. 21.—Eastern Suburbs Medical Association, New South Wales.
SEP. 25.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.

Editorial Notices.

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